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**THE
RITUS CANENDI VETUSTISSIMUS
ET NOVUS
OF
JOHANNES LEGRENSE**

**A CRITICAL EDITION WITH
TRANSLATION, INTRODUCTION AND
NOTES ON THE TEXT**

by

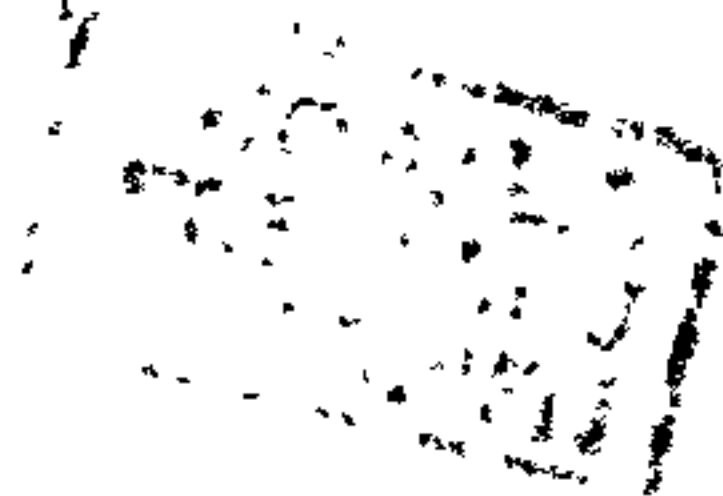
RICHARD VAUGHAN HUGHES

IN TWO VOLUMES

**SUBMITTED TO GLASGOW UNIVERSITY, THE FACULTY OF ARTS,
IN FULFILMENT OF THE REQUIREMENTS OF
THE DEGREE OF DOCTOR OF PHILOSOPHY**

MARCH 1996

VOLUME TWO



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CONTENTS

VOLUME TWO

THE TREATISE	115
Its Structure	117
The Manuscripts	118
Manuscript Characteristics and Relationships	120
Editorial Practice	123
ABBREVIATIONS USED IN THE APPARATUS CRITICUS	125
ABBREVIATIONS USED IN THE ENGLISH TEXT	126
THE TEXT AND TRANSLATION	129
Praefatio Libelli Musicalis de Ritu Canendi Vetustissimo et Novo.	130
Preface to the music treatise which aims to deal with the old and new methods of singing.	131
Pars Prima The First Part	
Liber Primus The First Book	
I. Quis hominum primo cecinerit?	136
Who was the first man to sing?	137
II. Quid sit aut a quo dicatur musica, quodque sit universalis linguis omnibus, ac de quatuor mathematicis una.	140
The nature of music, and the derivation of the word. The fact that it is the universal language amongst all languages, and how it comes to be one of the four mathematical disciplines.	141
III. Quid sit sonus, quid phthongus, quid tonus, quid semitonium minus, cum his quae redundant ex illis.	144
The definitions of <i>sonus</i> , <i>phthongus</i> , <i>tonus</i> and <i>semitonium minus</i> . In connection with these topics, the things which emanate from them.	145

IV.	De primo et antiquissimo tetrachordo: qualefuerit ac unde venerit.	156
	Concerning the first and oldest tetrachord: its nature and its source.	157
V.	Addidisse philosophos suprascriptis chordis et alias undecim per intervalla temporum nec unquam illos excessisse quindecim numerum.	160
	The philosophers added eleven other pitches at different times to the ones mentioned above: they did not add any beyond fifteen.	161
VI.	Harum quindecim vocabula chordarum ac interpretationes earum.	166
	The terms used for these fifteen pitches, with their meanings.	167
VII.	Has quindecim chordas hic more Graeco per solum genus diatonicum divisas.	172
	These fifteen pitches at this point are classified in the Greek fashion only by the diatonic genus.	173
VIII.	Alia duo tetrachorda primis duobus simillima; cur sint ab illis per unum tonum disiuncta.	178
	Two other tetrachords, which had the same structure as the first two: why they were separated from them by the interval of a tone.	179
IX.	Cur quintum sit inventum tetrachordum et cum chorda mese ligatum.	184
	Why the fifth tetrachord was invented, and why it was joined to the mese.	185
X.	Ad sonitum malleorum Tubal-Cain; Jubal concepisse totam in numeris musicam consistere.	190
	Regarding the sound of the hammers of Tubal-Cain; Jubal discovers that music consists entirely of numbers.	191
XI.	Quibus proportionibus numerorum Jubal adaptari voluit consonantias vocum atque sonorum.	194
	With which numerical ratios Jubal wished to relate the consonances produced by sounds and pitches.	195
XII.	Numeros eiusdem esse naturae voces et sonos.	200
	That pitches or sounds have the same natural proportions as numbers.	201

Liber Secundus

The Second book

- I. Genus multiplex continere diapason et quicquid ab illo sit compositum. 206
The multiple type contains the diapason and other intervals compounded from it. 207
- II. Genus superparticulare non ut est multiplex integrum, ac per hoc non reddere tam suaves diapente consonantias et diatessaron. 212
The superparticular genus is not integral, as is the multiple genus; because of this, it produces consonances which are not so pleasing—the diapente and the diatessaron. 213
- III. Genus superpartiens nullam in sonis pro nimia partium abundantia reddere consonantiam. 218
The superpartient genus does not produce any consonance between sounds because it possesses too many aliquot parts. 219
- IV. Multiplex superparticulare musico non esse necessarium. 224
The multiple superparticular genus is not needed in music. 225
- V. Multiplex superpartiens nullam in musica procreare concordiam, ac in eo discordem cadere diapason diatessaron. 228
The multiple superpartient genus produces no consonance in music; the discordant diapason diatessaron falls within it. 229
- VI. Quid sit monochordum, curve sumpsit tale vocabulum. 234
What the monochord is, and why it is called by such a name. 235
- VII. De dimensione monochordi per genus diatonicum. 238
The divisions of the monochord according to the diatonic species. 239
- VIII. Optimam diapason in optimo genere multiplici constitutam et esse aequisonam. 248
The most excellent interval of the diapason is built on the most excellent multiple genus; it is 'equison'. 249

1X.	Tonum in duo posse dividi, non aequa tamen.	256
	The whole tone may be divided two, but not equal, parts.	257
X.	Omnes monochordi tonos dividere necessarium per minus scilicet ac maius semitonium.	262
	It is necessary to divide each whole tone on the monochord into major and minor semitones.	263
XI.	Cur perfectarum consonantiarum aliae perfectissimae sint caeterarum.	274
	Why, of all the perfect consonances, some are more perfect than others.	275
XII.	Cur omnium dissonantiarum aliae sint auditui compassibiles, aliae vero non.	282
	Why, of all the dissonances, some are compatible to the ear, while others are not.	283

Liber Tertius

The Third Book

I.	Secundum modulandi genus enarmonicum.	298
	The second type of melodic pattern—the enharmonic.	299
II.	Tertium modulandi genus esse chromaticum.	304
	The third type of melodic pattern is the chromatic.	305
III.	Tres esse diatessaron species.	312
	That there are three species of diatessaron.	313
IV.	Quatuor esse diapente species.	318
	That there are four species of diapente.	319
V.	Septem esse diapason species, septem quoque constitutiones.	324
	That there are seven species of diapason, and seven systems also.	325
VI.	Quid sit cantus, quidve cantio seu cantilena.	332
	The nature of melody, which the Latin words <i>cantio</i> and <i>cantilena</i> also embrace.	333
VII.	Quatuor diapason diatessaron constitutiones.	336
	The four different systems of diapason plus diatessaron.	337
VIII.	Septem fieri posse varias de bisdiapason constitutiones.	342
	That there are seven different bisdiapason systems.	343

IX.	Impossibile veram haberi de tropis, tonis sive modis notitiam et praefatas nescire constitutiones.	348
	It is impossible to have a true knowledge of the tropes, tones or modes, and at the same time be unaware of the aforementioned systems.	349
X.	Octo tropos esse Graecorum philosophorum sive tonos sive modos.	352
	That there are eight tropes, tones or modes which stem from the Greek philosophers.	353
XI.	Omne genus hominum canere posse per septem alphabeti sui litteras.	358
	Every race of men can sing by using the seven letters of their own alphabets.	359
XII.	Grandem esse distantiam inter musicum et cantorem.	364
	There is a vast difference between the musician and the singer.	365

Pars Secunda The Second Part

Liber Primus

The First Book

	Vera quamque facilis ad cantandum atque brevis introductio.	370
	A short introduction to singing which is truthful and easy to grasp.	371
I.	Quod quindecim illas tantummodo voces cantus ecclesiasticus occupet.	374
	An ecclesiastical chant occupies a range which consists only of these fifteen pitches.	375
II.	Hac sola posse figura quemvis addiscere cantum seu docere faciliter; verumtamen facilius magisque tenaci memoria, si sic ordinetur in manu sinistra.	384
	It is by means of this diagram alone that it is possible for anyone to learn or to teach singing easily; however, it will be easier, and indeed more easily memorized, if it is arranged like this on the left hand.	385

I11.	Quae sint litterae musicales, quae syllabae vel dictiones.	388
	What musical letters are; what the musical syllables and words.	389
1V.	De quatuor tropis tonis sive modis antiquis ecclesiasticis in quatuor authenticos et quatuor plagales postea commutatis, et primum de proto.	408
	The four early ecclesiastical tropes, tones or modes which were later changed into four authentic and four plagal modes. First—the protus.	409
V.	De primis authenticis atque plagalibus tropis sive modis, ab antiquo proto descendentibus, quos primos et secundos moderni nuncupant abusive tonos.	416
	The first authentic and plagal tropes or modes which are descended from the ancient protus. These, the moderns incorrectly call the first and second tones.	417
	De secundis authenticis atque plagalibus tropis sive modis ab antiquo deuterio descendentibus, quos tertios et quartos moderni nuncupant abusive tonos.	420
	The second authentic and plagal tropes or modes, descended from the deuterus of old, which the moderns incorrectly call the third and fourth tones.	421
	De tertiis authenticis atque plagalibus tropis sive modis ab antiquo trito derivatis, quos quintos ex sextos moderni nuncupant abusive tonos.	424
	The third authentic and plagal tropes or modes, derived from the old tritus, which the moderns wrongly call the fifth and sixth tones.	425
	De quartis authenticis atque plagalibus tropis sive modis ab antiquo tetrardo derivatis, quos septimos et octavos moderni nuncupant abusive tonos.	428
	The fourth authentic and plagal tropes or modes, derived from the ancient tetrardus, which the moderns incorrectly call the seventh and eighth tones.	429
VI.	De parvulis planis cantibus ac de certis aliis in plano cantu frequenter occurrentibus dubiis.	434
	Plainsong melodies of limited range. Certain other questions which frequently occur in a plainsong melody.	435

V11.	De planis cantibus in <i>a</i> vel \flat vel etiam in acuto finientibus.	440
	The plainsong melodies which have their endings on high <i>a</i> \flat or <i>c</i> .	441
V111.	Ubi per \square quadrum canendum sit et ubi per <i>b</i> rotundum.	450
	When to sing the square \square and when the round <i>b</i> .	451
1X.	De responsoriis a suo fine et suo verso cuius toni sint praesto discernendis.	460
	How one can readily decide on the tones of the responsories by their finals and their verses.	461
X.	De plagalibus et authenticis antiphonis a suo fine et 'Saeculorum' aut EUOUAE discernendis.	466
	Distinguishing the plagal and authentic antiphons according to their finals and by their 'Saeculorum' or EUOUAE.	467
XI.	De finitis in <i>a</i> nonnullis antiphonis secundum modernos irregularibus.	486
	Concerning certain antiphons which have their finals on <i>a</i> , which according to the moderns are irregular.	487
XII.	Cantus seculares et lascivos, quos moderni discantus appellant figuratos ac mensuratos, non esse regulis suprascriptis subiectos.	494
	Secular and wanton melodies which the moderns call figured and measured discants. The above rules do not apply to them.	495

Liber Secundus

The Second Book

I.	Omnem ob sex syllabas et quinque vel sex modici decoris figuras vilipensam a modernis cantoribus musicae virtutem.	506
	Every good which music possesses is thought nothing of by singers of today because of the six syllables and the five or six note shapes of modest appeal.	507
II.	Omne quidem in <i>ut re mi fa sol la</i> superfluum quod non sit aut in allegata illa Guidonis epistola, aut in hac symphonia saltem expressum.	518
	Everything in <i>ut re mi fa sol la</i> is superfluous which is not mentioned in Guido's letter, mentioned previously, or expressed in this melody.	519

- III. Quare Guido sex syllabas elegerit ad cantandum, nec plus nec minus, et quare litteras ABCDEFG dictis syllabis miscuerit; quid sit *ut*, quid *re*, et caetera, curve G gamma Graecum ante nostrum A locare voluerit, et in manu sinistra totum sic ordinare. 524
- Why Guido chose six syllables for the purpose of singing, neither more nor less. Also, why he mixed the letters ABCDEFG with the said syllables. The nature of *ut*, *re* and so on. Why he wanted to place the Greek G before our own A, and arrange it all like this on the left hand. 525
- IV. Modus canendi per *ut re mi fa sol la* facilis verus atque brevissimus. 532
- A method of singing by means of *ut re mi fa sol la* which is easy, true and very concise. 533
- V. Cur pauci vel nulli cantorum sciunt componere planum cantum. 560
- Why few, or even no singers, know how to compose plainsong. 561

Liber Tertius

The Third Book

- Praefatiuncula 566
- Short Preface 567
- I. Quid sit planus cantus, quid commixtio vocum sive contrapunctum, quidve fractio vocis aut cantus figuratus. 570
- The nature of plainsong, of the 'intermingling of voices' or 'counterpoint', and of the 'diminution of pitch value' or 'figurative melody'. 571
- II. De solis perfectis consonantiis ac dissonantiis compassibilibus ad voces commiscendas omnino necessariis. 574
- Concerning the only perfect consonances, and also the compatible dissonances which are absolutely necessary for the intermingling of parts. 575

III.	Omne quod fieri potest de supradictis omnibus per singulas litteras voces ac syllabas, tam graves quam acutas et superacutas, in manu Guidonis.	586
	Everything which can take place arising from all of the above, through the individual letters, the pitches and the syllables on the Guidonian Hand, whether they be low, high or very high.	587
	De A gravi.	588
	Concerning low A.	589
IV.	De h gravi.	598
	Concerning low h.	599
V.	De C gravi.	602
	Concerning low C.	603
VI.	De D gravi.	606
	Concerning low D.	607
VII	De E gravi.	610
	Concerning low E.	611
VIII.	De F gravi.	614
	Concerning low F.	615
IX.	De G gravi.	618
	Concerning low G.	619
X.	Quid sit de primis commiscendo voces observandum.	624
	What must be observed at the outset when blending parts together.	625

THE TREATISE

THE TREATISE

ITS STRUCTURE

The structure of *Ritus Canendi* is outlined in Johannes' own Preface to Part One of the treatise itself; it consists of two parts, each of which comprises three books:

PART ONE (PARS PRIMA)

First Book (Liber Primus)

This contains material on the background of music, its inventor, descriptions of sound, pitch and interval, and the tonal schemes of Antiquity.

Second Book (Liber Secundus)

This begins with an explanation of the five types of proportional relationships, and how they are applied in determining the positions of individual pitches on the monochord. This is followed by an exposition on the unequal division of the whole tone according to Pythagorean principles, and concludes with remarks on consonance and dissonance.

Third Book (Liber Tertius)

Johannes here describes the three genera of Greek theory—the diatonic, enharmonic and chromatic, the scalar structures contained within the consonances, and the modes peculiar to Boethius.

PART TWO (PARS SECUNDA)

First Book (Liber Primus)

This book contains a description of the eight ecclesiastical modes, and the various chant formulae. It closes with stern criticism of all kinds of measured music.

Second Book (Liber Secundus)

This provides an extensive description of the process of solmization, together with suggestions for its simplification.

Third Book (Liber Tertius)

Here is contained a summary of the rule for simple, note-against-note counterpoint, and an explanation of how dissonances should be resolved in such a context.

THE MANUSCRIPTS

Ritus Canendi survives in two manuscripts, both housed in the British Library. Charles Burney claimed to have identified a third source, but here he was in error.*

The humanistic script in both the manuscripts shows them to be of Italian provenance. There is evidence to show that Johannes himself is the scribe of H (and see below): if this is the case, H can be dated between 1458 and 1462, for Johannes claims to have written the treatise in the reign of Pius 11. Burtius claims to be the scribe of A; since he records Johannes' death as having taken place in 1474, A must have been produced sometime between that year and the year of Burtius' death in 1518.

H British Library, Harley 6525
96 ff.

1. ff.1r-34v *Incipit:* Praefatio libelli musicalis de ritu
canendi vetustissimo et novo....*Explicit*....
Explicit prima pars de ritu canendi vetustissimo.
2. ff.35r-76v *Incipit:* Vera quamque facilis ad cantandum atque
brevis introductio. Pauperibus Ecclesiae Dei
clericis....*Explicit*.... Si discere cupis, fac
ubique similiter. Explicit.
3. ff.77r-87v *Incipit:* Incipit praefationcula in tam
admirabilem quam tacitam et quietissimam
numerationum ; concinentiam....*Explicit*....Explicit
tractatus brevissimus de totis algorismi
calculationibus.

*For Burney's reference, see his *A General History of Music* (Book One) (London, 1776, repr. 1957) p.644, where a footnote identifies the manuscript as Vat. Lat. 5904. This however is a copy of Boethius' *De Musica*, described in Bannister's *Monumenti Vaticani de paleografia musicale latine* (Leipzig, 1823, no.954.)

4. ff.88r-96r *Incipit:* Tacita nunc inchoatur stupendaque
 numerorum musica....*Explicit:*....illi vero sonant
 et consonant multumque pruritum humanis
 auribus praebere solent. *Explicit.*

The H. codex has been catalogued by Augustus Hughes-Hughes in *Catalogue of Manuscript Music in the British Museum* (London, British Museum, 1909) volume 3 p. 309. There are missing folios after ff. 4 and 20. Items 3 and 4 in the codex are not part of *Ritus Canendi*, and further research is needed to seek to establish their authorship.

A British Library, Additional Manuscripts 22315
 65 ff.

1. ff.1r-28r *Incipit:* Praefatio libelli musicalis de ritu
 canendi vetustissimo et novo....*Explicit:*....
Explicit prima pars de ritu canendi vetustissimo.
2. ff.29r-59v *Incipit:* Vera quamquam facilis ad canendum atque
 brevis introductio. Pauperibus Ecclesiae Dei
 clericis....*Explicit:* Si discere cupis, fac ubique
 similiter. *Explicit.* *Finis.*
3. f.60r *Explicit:* liber notabilis musicae venerandi viri,
 Domini Johannis Gallici, multi inter musicos
 nominis, cuius ego, Nicolaus Burtius, primum
 discipulus tunc in ea delectans, totum hunc propria
 manu ex eo quem ediderat transcripsi et notavi.
 Obiit autem vir iste anno Domini MCCCCLXXIII,
 cuius animam paradisos possidet, corpus vero Parma
 terra nobilis.
4. f.61r *Incipit:* Contrapunctus secundum Magistrum Johannem de
 Muris est facere unam notam supra unam tenoris.
Explicit:....Nota quod possumus ascendere et descendere.

- 5 ff.62r-62v *Incipit: De prolatione sexquialtera perfecta minore antecedente. Nota quod in proportione sexquialtera supra tempus perfectum....Explicit:....Nota quod in proportione subsexquialtera in quacumque prolatione.*
6. ff.63r-65v On f.65, there is the date MCCCCLXXVII, followed by a short paragraph—'Nicolaus de Burtiis promissus (?) est missarum (?) in ecclesia Sanctae Mariae de Martirano ordini nomine Dominae Abbatisae dicti monasterii, ac Johannis de Montalis. Ob hoc ducatos quinque rasura Sponderunt sic'. On f.65, there is a short excerpt from Boethius' *De Musica* (p. 213, 7-20) and a short continuation: 'Cum in his tribus melorum generibus diatessaron....Musica ipsius concordationis ratio'.

It is clear from f.60 of the A codex that Burtius is its scribe, and it is also catalogued by Augustus Hughes-Hughes (and see 3 above).

MANUSCRIPT CHARACTERISTICS AND RELATIONSHIPS

H contains frequent corrections, emendations, additions and deletions. Many of the additions are simply marginal chapter headings, but some are 'afterthoughts', which the author has added to enhance the meaning (the square brackets signify the additions):

H 8v:

Difficile dico quidem et non naturale quoniam, ut vides, arte quadam hic tonus [quod pauci capiunt] dividitur....

(I emphasise that this is a difficult and unnatural feature, for as you see, by means of certain skilful procedures, the whole tone is at this point divided into two segments, a point which few appreciate....)

H 47r:

Sint ergo signa b mollis et b quadri pro pueris, et qui non intellegunt tonum ac semitonium rudibus; nos vero [sectari decet rationem] quibus sapere donavit Deus.

(And so let the signs both for the soft b and the square b be for the benefit of boys and uneducated individuals who do not understand about the tone and

semitone; we however should follow reason, since God has bestowed upon us the gift of sense).

And at H 53v:

Unus enim imperator quendam episcopum in vinculis tenebat, quem cum in die Palmarum hanc laudem, quam fecerat ad honorem Christi, cantare sensisset [ad fenestram carceris].....

(For one of the emperors was holding in custody a certain bishop; but when, on Palm Sunday, he had heard this bishop singing this song of praise in honour of Christ, [close by the prison window].....)

An equally interesting type of emendation shows the scribe of H to be conscious of particular aspects of style—a dimension beyond that of mere grammar. Examples of stylistic word-order can be identified (the square brackets identify H's deletions):

1. H 1r:.....omne genus hominum [posse] per septem alphabeti sui litteras laudare Deum, hoc est, cantum angelicum Ecclesiae modulari, posse probabit. (.....it will prove that men of all nations can praise God by using seven letters of their alphabet—in other words, they are able to sing the angelic melodies of the Church.)

2. H 59v:.....quae communes [sunt] omnium melodiarum mensurae sunt..... (.....which are the common measures of all melodies.....)

H at one point seems also to be conscious of the force of the double negative in Latin, as in:

nec hoc [Zeno] non vidit
(nor did [Zeno] fail to see this)
(Cicero *De Finibus* iv 22, 60)

However, the scribe is seen not be strictly correct in the following (H 25r), and is followed—without consideration—by A (21r):

Quoniam quidem neque spes absque fide, neque fides absque spe, veram illam, quae in Deo est, non (H *supra lin*) apprehendit caritatem.
(Since neither hope without faith, nor faith without hope can grasp that true charity which is in God.)

All such emendations are in the principal hand throughout the codex, which would suggest, not only that H is the original working manuscript, but also that, following from this, Johannes himself is its scribe. Though there are missing diagrams in H, this is due to codicological damage: there is but one

instance of such an omission from within any section of the text which, using A as a check, is obviously complete (A is able to provide folios and diagrams not present in H). Thus it would not be prudent to ascribe the omissions in H to scribal oversight in copying from the original, thus proving that H is itself a copy. The notable exception is the monochord diagram—missing in H but accommodated in A: there is in H an empty page for this diagram which was never drawn in; but there could have existed, for this difficult drawing, a supplementary page which was, or was meant to have been, inserted at this point, and it was this that could have been lost.

Burtius claims to be the scribe of A, but more significantly, he claims to have copied *Ritus* 'in his own hand' ('propria manu') from the manuscript which Johannes himself had produced:

.....cuius ego, Nicolaus Burtius.....totum hunc *propria manu ex eo quem ediderat* transcripsi ac notavi (A 60r)

This must be further support for the supposition that Johannes is the scribe of H, and there are several further instances where, in the editorial *scripsi* passages, Burtius has followed H's errors without discrimination.

In cases where the present editor has seen fit to correct H, these generally involve adjustments to ensure grammatical agreement, and A is seen to follow H:

'consonantias' has replaced 'consonantiam' (A 9r, H 11v):

.....tam suaves diapente consonantias et diatessaron.

'falsa'¹ has replaced 'falso' and 'falsa'² has replaced 'falsum' (A21r H 25r):

.....ita falsa diatessaron.....ac falsa diapente.....

Elsewhere, A follows H in writing *philomena*, which has been replaced with *philomela* (A 29v H 57v).

(It is perhaps understandable—in the context of the understanding of Greek during this period—that at this point neither scribe had realised the gender of the Greek terms *diatessaron* and *diapente*, both of which are feminine.)

Finally, at A30v H 37r:

'fleva' (which is not an entity) should read 'flevamen', and here again A follows H.

EDITORIAL PRACTICE

It is worth recalling that H contains many corrections etc., but it should be stressed that those occasions are rare on which editorial corrections to H have been deemed to be necessary. However, misreadings in A are two-fold: either—as we have seen—the scribe has followed H without discrimination, or A is guilty of careless copying. The following examples, from among many in A, reveal non-existent words, incorrect grammar, and occasions where the sense is destroyed.

A 4r:

....qui tumultuarias (tumulas *pro* tumultuarias A) quoque componens cantilenas.....
(....who also improvised melodies.....)

A 29r:

Idcirco notae quadrae, quibus nunc utimur, nil praeter (propter *pro* praeter A) illas septem repraesentant, litteras ABCDEFG
(For this reason, the square notes which we now use represent nothing more than than those seven letters ABCDEFG.....)

A 13r:

En habemus voces quindecim in monochordo per tonum ac perfectas consonantias iusta (iuxta *pro* iusta A) dimensione.....
(Well then, we have the fifteen pitches arranged on the monochord using the correct measurements according to the tone and the perfect consonances.....)

A 5r:

His igitur expeditis, ac quindecim illis phthongorum vocum sive sonorum vocabulis (vocalibus *pro* vocabulis A) satis ad propositum interpretatis.....

(Having settled these matters then, and having explained—sufficiently well for our purpose—the fifteen terms used for the *phthongi*, pitches or sounds.....)

The frequency in A of errors such as these makes H the more correct text, and instances where A's reading is preferable are rare.

Thus H is regarded as the principal codex, though A provides diagrams not present in H.

The edited Latin text conforms to modern editorial practice in that every Latin period is numbered, and identical numbers appear at the corresponding points in the English translation.

All spellings have been standardized according to classical usage, as represented in *A Latin Dictionary* of Lewis and Short. Consequently, spellings which are peculiarly medieval have been avoided, so that, for example, the word *dyapason* appears as *diapason*. This approach not only makes for easier reference, but also more accurately portrays words of Greek origin. The transliteration of Greek terms also takes account of the rough breathing, so that 'ἁρμονία' appears as *harmonia*, not *armonia*.

In both the manuscripts, *Pars secunda* of *Ritus Canendi*, though clearly in three books, has no clear breaks according to chapter numbers; I have generally followed Seay's editorial divisions in this respect.

ABBREVIATIONS USED IN THE APPARATUS CRITICUS

A		British Library Additional Manuscripts no. 223125
<i>add</i>	(addidit)	he has added
<i>bis</i>		twice
<i>corr</i>	(correxit)	he has corrected
<i>dele</i>	(delevit)	he has deleted
<i>emend</i>	(emendavit)	he has amended
H		British Library Harleian Manuscripts no. 6525
<i>in marg</i>	(in margine)	in the margin
<i>om</i>	(omisit)	he has omitted
<i>post</i>		after
<i>pro</i>		instead of
<i>scripsi</i>		I have written
<i>supra lin</i>	(supra lineum)	above the line
<i>ubique</i>		in all cases

Square brackets enclose letters, words or numbers added by conjecture.

Round brackets identify words to be understood.

ABBREVIATIONS USED IN THE ENGLISH TEXT

These further sources appear in abbreviated form underneath the English text, as follows:

1 <i>Ad Cor.</i>	St Paul's First Letter to the Corinthians
<i>Antiq. Iud.</i>	Josephus <i>Jewish Antiquities</i>
<i>Bond Handbook</i>	J.J. Bond <i>Handbook for Verifying Dates with the Christian Era.</i>
Ellsworth <i>Berkeley</i>	Oliver B. Ellsworth ed. <i>The Berkeley Manuscript</i>
<i>Expositiones</i>	Prosdocimus <i>Expositiones tractatus prattice cantus mensurabilis magistri Johannis de Muris</i>
<i>Gn.</i>	The Book of Genesis
Guido <i>Reg. rhyth.</i>	Guido d'Arezzo <i>Regulae rhymicae</i>
Guido <i>Aliae reg.</i>	Guido d'Arezzo <i>Aliae regulae</i>
Guido <i>Epistola</i>	Guido d'Arezzo <i>Epistola de ignoto cantu</i>
Hothby <i>Tres Tract.</i>	John Hothby <i>Tres Tractatuli contra Bartholomeum Ramum</i>
<i>Inst. orat.</i>	Quintilian <i>Institutio Oratoria</i>
Isidore <i>Ety.</i>	Isidore <i>Etymologiarum sive Originum libri xx</i>
<i>Mus. ench.</i>	<i>Musica enchiriadis</i>
<i>PL</i>	<i>Patrologia Latina</i>
<i>Ps.</i>	The Book of Psalms
<i>Quattuor princ.</i>	<i>Quattuor principalia</i>
<i>Sap.</i>	The Book of Wisdom

<i>Sec. Lucam</i>	St Luke's Gospel
<i>Sec. Matt.</i>	St Mathew's Gospel
<i>2 Reg.</i>	The Second Book of Kings
<i>Term. mus. diff.</i>	Tinctoris <i>Terminorum musicae</i> <i>diffinitorium.</i>
<i>Tinctoris Liber</i>	<i>Tinctoris Liber imperfectionum</i> <i>notarum musicalium</i>

* in the English text, and in the accompanying footnotes, refers the reader to the *Additional Sources and Observations* which appear in Volume 1, commencing at p. 83.

Also in the English text, titles of liturgical chants are not identified with the asterisk, but the sources for all of these are accommodated in the *Additional Sources and Observations*.

TEXT AND TRANSLATION

¹Praefatio Libelli Musicalis de Ritu Canendi Vetustissimo et Novo.

²Omnium quidem artium, etsi varia sit introductio, ducit tamen ad unum, haud secus quam si per varias semitas in eundem plures convenerint locum.

³Gallus etenim fari docet uno ritu Latinum, et alio Romanus aut Italicus, qui tandem in unam concurrunt Latinae linguae scientiam quam prisci profecto Romani vocarunt, imitati Graecos, grammaticam. ⁴Sic et Graeci de similibus, sic et barbari, sic et multae nationes hominum, quae non modo liberales ac huiuscemodi virtutes diversis per loca docuere praeceptis, verum etiam viles atque mechanicas artes quam variis exercuere modis. ⁵Omnes unum, ut dictum est, et id ipsum agunt, quamquam hic aliter ac aliter ibi discant et operentur, doceant ac instruantur. ⁶Quorsum ista? Quae quidem non dico novam introducere volens, sed magis in Ecclesia Dei sub Domino Papa Pio Secundo renovare nitens veram antiquorum patrum atque brevem et facilem de sonis ac vocibus practicam. ⁷Oportuit primum eis qui quos nostris temporibus canere docent in ecclesiis tanta rei prolixitate fatigant totque verborum ambagibus, antequam veniatur ad rem, afficiunt, ut obruti saepe tedio mox a coepto discendi proposito recedant, oportuit, inquam, illis primum ostendere quam multifarie potest ad huius artis pervenire notitiam, dein quis sit introducendi modus faciliior atque praestantior viris potissimum ecclesiasticis demonstrare.

1. A Ir H Ir
vetustissimo *corr ab* vetussimo A
4. et *om* H
7. veniant *pro* veniatur A
(potest) quis *dele* H
pervenire *in marg* H
sit *supra lin* H

¹Preface to the music treatise which aims to deal with the old and new methods of singing.

²Even though the origin of each of the arts is different, nevertheless these origins converge onto common ground, in the same way as several people might arrive at the same place by different routes.¹ ³In fact, the French teach Latin to be spoken in one way, while the Romans or the Italians advocate another. But these in the final analysis have in common the same knowledge of the Latin language which the ancient Romans called 'grammar', taking the Greeks as their model. ⁴Thus, the Greeks, the barbarians, and indeed many nations in similar matters teach not only the liberal arts of this type in different ways from district to district, but even practise the humbler, mechanical skills by adopting quite different methods. ⁵All peoples then, as has been said, are working at one and the same thing, though they learn it, practise it, explain it, and are instructed upon it in different ways in different places. ⁶What is the point of these remarks? I do not mention these issues because of a wish to introduce new practice, but rather through a desire, under the papacy of Pius II,² to renew within God's Church the true, concise, and indeed easily mastered practices of the ancient fathers as regards sounds and pitches. ⁷Those who today teach people singing in our churches bore them with such a prolongation of the subject matter, and afflict them with so many circumlocutions before they come to the point, that even they are frequently overcome by boredom, and soon depart from the intention of learning.³ We should, I say, first point out to these men how many different ways there are of gaining knowledge of this art; then we should demonstrate to them an easier way, indeed a better way to introduce it especially to men of the Church.

¹Cf Burtius *Florum libellus*, p. 74: 'Tametsi omnium artium varia aliquando sit introductio, una tamen dumtaxat et non plures celebrantur musicae'.*

²Pope Pius II reigned from 1458-1464; see Introduction, p 3.

³Cf below *Pars secunda* 2.2.6.

⁸Hinc est quod prima pars opusculi–quis primus hominum cecinerit, quamque simplex organum ac per consequens parvus numerus vocum a principio fuerit, qualiterve paulatim ad quindenos usque sonos incrementum susceperit, ac similia veraciter in primo declarat.

⁹Secundus autem liber de monochordo tractans, ac in eiusdem instrumenti figura quicquid dicatur approbans, demum in ea quae totum colligit et numeros inter se proportionatos habet finitur.

¹⁰Tertius vero de duobus primum tractabit melorum generibus ab Ecclesia sobria merito quidem reprobatis, de primis consonantiis et earum speciebus, de tropis Graecorum tonis sive modis, ac de vocum constitutionibus, hisque peractis, omne genus hominum per septem alphabeti sui litteras laudare Deum, hoc est, cantum angelicum Ecclesiae modulari, posse probabit.

¹¹Verum secunda pars alios tres continebit libros, quorum primus canere per puras litteras edocet, ac omnia de facili more patrum antiquorum discernere.

¹²Secundus, quod sit *ut re mi fa sol la* –quando coeperit ac unde venerit.

¹³Tertius vero monstrat commiscere voces et, ut aiunt vulgo, simplex contrapunctum.

8. simile *pro* similia A
9. monochordio A
10. (hominum) posse *dele* H
13. demonstrat A
simplex *in marg* H

⁸This is the reason why the first part of my treatise sets out accurately in the first book who amongst men was the first to sing, how simple organum was, consequently, the small number of sounds in existence at the beginning, and how gradually their number increased to fifteen, and similar topics.

⁹The second book deals with the monochord, and proves whatever is said about it by referring to a diagram of the same. The book ends with a diagram which collates all the material, and contains the numbers with their proper proportions.

¹⁰The third book will deal first with the two types of melody rightly condemned by the Church in its wisdom. It deals too with the basic consonances and their species, with the Greek tropes, tones or modes, and with the systems of pitches. Having dealt with these topics, it will prove that men of all nations can praise God by using seven letters of their alphabet—in other words, that they are able to sing the angelic melodies of the Church.

¹¹The second half of this treatise will contain three further books, the first of which will deal with the teaching of singing through the use of these basic letters, and also an understanding of everything concerning the easy methods of the ancient fathers. ¹²The second book explains *ut re mi fa sol la*, when this system began and whence it came. ¹³The third shows how different voices are combined, and, to use the popular term, simple counterpoint.

¹⁴Gallia namque me genuit et fecit cantorem, Italia vero qualemcumque sub Victorino Feltrensi, viro tam litteris Graecis quam Latinis affatim imbuto, grammaticum et musicum, Mantua tamen Italiae civitas indignum Cartusiae monachum, neque tam doctoris egregii Boetii cultorem in hac re seu commendatorem, quam et sollicitum proponendae vetustatis in omnibus sectatorem et inquisitorem. ¹⁵Sileant igitur quicumque multas opinari solent esse musicas, neque doceri posse ferunt hanc universalem scientiam nisi per sex illas syllabas, sed et suam generant confusionem qui tam nobilem artem cifris et phantasiis autumant esse subiectam.

¹⁶Obmutescant iterum atque rursum et erubescant, iactantes illam sub petris inventam aut in guttis aquarum ab alto nescitur unde cadentibus. ¹⁷Quae quidem omnia tali levitate deridenda sunt quali ab insensatis viris dicta vel scripta. ¹⁸Nos autem huiuscemodi virtutis practicam variis ab antiquo modis edoctam ac denuo doceri posse monstrabimus, et tamen quo ritu primum innotuerit hominibus.

¹⁹Auctore Deo, sine quo nihil est, non silebimus.

²⁰EXPLICIT PROLOGUS

15. sollent A posse ferunt *om* A
 16. ab *pro* in A
 18. huiusce H hominibus *om* A

¹⁴I was born in France, and learnt to sing there. Italy taught me my limited knowledge of grammar and music. I studied under Vittorino da Feltre,⁴ a man deeply learned as much in Greek as in Latin literature, but it was while I was living in the Italian city of Mantua that I became a humble Carthusian monk, and not so much a follower or recommender of the distinguished teacher Boethius in this subject, but rather as one anxious to expound on the ancient learning as an adherent of it, and a researcher into everything concerning it. ¹⁵Let them be silent therefore—those who are used to thinking that there are many 'musics', and who say that this universal knowledge can be taught only through the six syllables; they create their own confusion who think that such a noble art is subject to obscure terminology and speculation.

¹⁶Let them be silent, let them blush for shame again and again, who make the empty claim that our art was discovered underneath the stones, or in drops of water falling from on high from goodness knows where.⁵ ¹⁷All this is worthy of derision in the same superficial spirit as it was stated or written by those foolish individuals. ¹⁸I will show you that it is possible to teach afresh the practice of an art of this kind, as it was taught in various ways of old, and how it first became known to mankind.

¹⁹With God's authority, without which nothing exists, I shall not remain silent.

²⁰THE END OF THE PROLOGUE

⁴See Introduction, pp. 5-6.

⁵See, e.g., Marchetto *Lucidarium* 1.6.2-3 for derivation of 'music' from 'water'. Reference to 'stones' has not been identified.*

¹INCIPIT LIBER PRIMUS²Capitulum primum: ³Quis hominum primo cecinerit?

⁴Miror viros nostri temporis, doctos atque peritos, maxime tamen ecclesiasticos, adhibere posse fidem his qui tradunt modos musicos sub petris, ut supra tractatum est, fuisse repertos aut in guttis aquarum et terrae cavernis, nisi forte putent Jubal organa tantum aut citharas fabricasse, quod stulti cogitatus est, nec illum prorsus aut quempiam alterum ante diluvium cecinisse.

⁵Quod si verum est ut post diluvium Graecus, Latinus aut barbarus dulces prior modulari sonos inceperit, nemo necesse est ad illa usque tempora canendi formam habuit, et si nullus ante diluvium huius rei notitiam perceperunt, profecto sacra pagina, quae non mentitur, nobis verum non tradidit. ⁶Scripsit enim Moyses de praefato Jubal qui, ni fallar, extitit ab Adam septimus e stirpe Cain utpote generatus, quod *pater fuit canentium in organis et citharis*, cuius frater, Tubal-Cain, artem eo tempore fabrorum invenit. ⁷Refert quoque Josephus, grandis auctoritatis apud Hebraeos, Graecos et Latinos historiographus, hunc Jubal adeo tenuisse caram sonorum quam exquisiverat artem ut illam in duabus columnis, verens diluvium, sculperet.

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|----|------------------------------------|
| 1. | A 1v H 1v |
| 4. | hiis <i>pro</i> his A |
| 5. | si ¹ <i>supra lin</i> A |
| 6. | praefacto A |
| | ex <i>pro</i> e A |
| 7. | a Deo <i>pro</i> adeo A |

¹THE FIRST BOOK

²Chapter 1: ³Who was the first man to sing?

⁴I am surprised that men of the present day, who are themselves learned and experienced people—in particular men of the Church—can put their trust in those who claim that musical modes were discovered, as we have discussed above, under stones, in drops of water, or in caverns under the earth, unless by chance they think that Jubal merely built organs and lyres—this stems from foolish thinking—and that he did not sing at all nor indeed did anyone else, before the time of the Flood. ⁵But if this is true, that after the time of the Flood, the Greeks, Latins and barbarians were the first to begin to sing sweet sounds, then it must follow that no-one until then had formed the habit of singing; further, if no-one before the Flood had any knowledge of this subject, then assuredly Holy Scripture, which does not lie, has not given us a true account. ⁶For Moses wrote about the above-mentioned Jubal who, unless I am mistaken, was the seventh generation after Adam from the stem of Cain, that he was the father of all who make music on organs and lyres.⁶ His brother, Tubal-Cain, discovered during that time the art of metalwork.⁷ ⁷Moreover, Josephus, who enjoyed great respect among the Jews, the Greeks and the Latins as a historian, refers to the fact that this man Jubal held so dear the art of sounds that he had discovered that, for fear of a flood, he had carved out details of it on two columns.⁸

⁶Gn 4,21: Iubal ipse fuit pater canentium cithara et organo.

⁷Gn 4,22.

⁸Cf. Peter Comestor, *Historia Scholastica* (PL 198, p. 1079). Concerning association of this story with Josephus, see Judith Cohen, *Jubal in the Middle Ages*, Dissertation, University of Tel-Aviv, 1975.*

⁸Quarum unam postea gens renovata vidit, prophetarat etenim illis Adam quod mundus cito periret aut per ignem aut per aquam, ob quod Jubal unam de columnis illis fecit latericiam ne solveretur ab ignibus, alteram vero marmoream, ne putrefieret in fluctibus. ⁹Alibi quoque legitur prius illum pro tedio pastoralis mitigando cecinisse, dein ad sonitum sui fratris malleorum causam rei nimis subtiliter exquisisse. ¹⁰Quod si quis noscere cupit qualiter, legat prius egregii doctoris Boetii musicam, et postea decimum, si placet, huius libelli nostri capitulum, quamvis imitatus Graecorum Boetius fabulas et iactantiam, huius rei philosopho Pythagorae totam ascribat gloriam. ¹¹Mei namque propositi non est theoricam huius artis velle post tam eximium virum, nisi forsitan raro coactus tractare, quin potius veram priscorum Ecclesiae Christi practicam, quae tota nihilominus ab illo fonte procedit, si possim renovare.

9. legat *in marg* A
 prius *supra lin* H
10. si placet *in marg* H
11. raro *in marg* H

⁸A later people—renewed after the flood—witnessed one of these, and indeed Adam had prophesied to them that the world would quickly come to an end either by fire or by water.⁹ It was because of this that Jubal had made one of these columns out of bricks, to prevent its being consumed by the flames, and the other out of marble, to avoid its crumbling away in the waters. ⁹Elsewhere, we read that he had first begun to sing in order to allay the boredom of country life, and then had researched the reason for this phenomenon, according to the sound of his brother's hammers.¹⁰ ¹⁰If anyone wishes to familiarise himself with the details of this, let him first read the *De Musica* of Boethius, that distinguished scholar, and then, if he wishes, the tenth chapter of this treatise of mine.¹¹ Though Boethius, taking as his models the stories and the claims of the Greeks, ascribes the whole of the credit for this idea to the philosopher Pythagoras.¹² ¹¹It is not my intention to deal with the theoretical aspects of this art in the steps of such a distinguished person, unless this I am compelled to do so on rare occasions. Rather would I discuss the true practices of the early Christian fathers; the practical side emanates from them after all, and I hope to be able to breathe fresh life into them.

⁹Josephus *Antiq. Iud.* 1,70.

¹⁰Cf. Peter Comestor, *Historia Scholastica* (PL 198, p. 1079)

¹¹See below *Pars prima* 1.10.4.

¹²*De inst. mus.* 1,10.

¹Capitulum secundum: ²Quid sit aut a quo dicatur musica, quodque sit universalis linguis omnibus, ac de quatuor mathematicis una.

³Ars igitur musica Deo placens ac hominibus, omne quod canitur discernens et diiudicans, ac de cunctis quae fiunt, non solum intendendo vocolas atque remittendo, sed etiam tempus metiendo, veram inquirens rationem. ⁴Nam et a verbo Graeco, quod *inquirere* significat, musa descendere dicitur, et *musicus*, apud Boetium, *est cui de modis atque rhythmis deque generibus cantilenarum adest secundum speculationem et rationem facultas*. ⁵*Omnis enim ars sive disciplina honorabiliorem habet naturaliter rationem quam artificium, quod manu artificis atque opere exercetur*. ⁶Non parum igitur errant qui musicam aliud esse putant in Gallis, aliud in Italia et in Graecia, seu aliud in singulis nationibus, cum omnium utique sit communis linguarum ac universalis, non aliter quam caeterae tres mathematicae sunt artes. ⁷Sicut enim arithmetica de numeris, geometria de terrae mensuris, astrologia de stellis et de earum motibus, ita quidem musica de sonis scientia est ac vocibus. ⁸Is ergo qui penes nos par habetur numerus, apud quosdam fortassis populos dispar erit et contrarius, aut quadrum hic per geometriam in quatuor triangulos resolutum, id non erit apud gentes omnium nationum?

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|----|--------------------------------|
| 1. | A 1v H 2r |
| 4. | de <i>pro</i> deque A |
| 5. | (ars) aut (sive disciplina) HA |
| 6. | cum sit omnium utique A |
| 7. | de <i>om</i> A |

¹Chapter II: ²The nature of music, and the derivation of the word. The fact that it is the universal language amongst all languages, and how it comes to be one of the four mathematical disciplines.

³Music then is an art which gives pleasure both to God and to man.¹³ It exercises discernment and evaluation in all that is sung, and searches for true reason in all things—not only in matters concerning the raising and lowering of sounds, but also in those concerned with the measurement of time. ⁴*Musa* is said to come from a Greek word meaning ‘inquire’¹⁴; ‘a musician’, according to Boethius, ‘is a person who has a particular gift for melody and rhythm, and indeed for different styles of composition, according to speculative and rational guidelines.’¹⁵ ⁵Every art or discipline, by its very nature, possesses a system commanding more respect than a craft, which is practised by the manual efforts of the artisan.’¹⁶ ⁶Those who believe that there is one kind of music amongst the Gauls, another in Italy or Greece, and others in other individual nations, are therefore making a serious mistake; for music is in every way a common universal language above all other languages, and this it has in common with the other three mathematical arts.¹⁷ ⁷Just as arithmetic deals with number, geometry with the measurement of the earth, and astrology with the stars and their movements, so music is the science of sound and pitch.¹⁸ ⁸A number which in our society is considered equal to another—would this number perhaps be considered unequal and opposite in other social groups? Or the fact that a rectangle, according to the rules of geometry here is made up of four triangles¹⁹—will this not be true among all nations of the earth?

¹³Cf. Burtius *Florum Libellus* p. 59.

¹⁴Cf. Isidore *Ety.* 3.15.1; Marchetto *Lucidarium* 6,2-3; see N. Swerdlow, “*Musica Dicitur A Moys, Quod Est Aqua*,” JAMS 20 (1967): 3-9.

¹⁵*De inst. mus.* 1,34 (225,11-15).

¹⁶*De inst. mus.* 1,23 (223,28-224,1).

¹⁷Cf below *Pars secunda* 3.10.4.

¹⁸This reference to the disciplines of the quadrivium is notable for its use of the word *astrologia* rather than *astronomia*. Medieval definitions of the quadrivium ultimately relate to *De inst. arith.* 1,1.

¹⁹Cf. *De inst. arith.* 2,6 (91,18): *quadratus in quattuor triangulos divisus*.

⁹Quod namque sol unus oriatur cunctis gentibus per diem, ac una luna per noctem, non est qui ambigat.

¹⁰Sic de musica sentiendum, o cantores, quoniam, etsi ritus modulandi varii sint varias in nationes atque varius ad docendum usus, non poterit tamen ullus homo canens vocem sursum intendere seu inflectere deorsum quin tonum proferat aut minus semitonium, ditonum aut semiditonum, tritonum aut diatesseron, perfectum diapente seu imperfectum, tonum cum diapente vel semitonium, ditonum cum diapente vel semiditonum, diapason perfectum aut imperfectum, seu ex his quippiam cum illa compositum; circa quae procul dubio tota versari debet contemplatio musicorum. ¹¹Nam et ipse Jubal qui, sicut audistis, pater fuit, hoc est, primus et princeps cantorum, quid valuit, dictante natura, canere nisi quoddam ex illis de tono semitonoque compactum? ¹²Sicut enim de littera, quae pars est compositae vocis minima, syllabae fiunt, ac de syllabis dictiones, et de dictionibus constructiones in grammatica, sic et phthongi quidem sive soni musici canore vocis originem habent, e quibus ortae syllabae musicales, tonus ac semitonium minus, iunctae simul in varias huius artis concrescunt vocum resonantias, quae tamen in ipsis resolvi queant omnia phthongis.

10. sic *bis* HA
 in varias nationes A
 flectere A
 12. pars compositae est A
 vocum *in marg* H

⁹For no-one doubts the fact that it is one sun that rises over all nations, tribes and languages by day, as does a single moon by night.

¹⁰O you singers! This is the view one should adopt about music—since, even if styles of singing and teaching methods vary from country to country, no man will be able, while he is singing, to raise the pitch of his voice or lower it without making use of the following intervals: the tone, the minor semitone, the ditone or semiditone, the tritone, the diatessaron, the perfect or imperfect diapente, the diapente plus tone or semitone, the diapente plus ditone or semiditone, the perfect or imperfect diapason, or any interval which is a combination of these. Surely it is to these topics that all the thoughts of musicians should be directed. ¹¹For even Jubal himself, who, as you have heard, was the father, that is, the first and chief among singers, what could he sing at nature's bidding except some combination of tone and semitone? ¹²Just as syllables are made up of individual letters, which are the smallest units of a compound sound, and words from syllables, and grammatical constructions from words, so sounds or musical pitches have their origin in the inflections of the voice. From these pitches develop 'syllables'—the tone and the minor semitone. These syllables in combination develop various 'melodic shapes' which we associate with the art of music.²⁰ Nevertheless, all these structures can be broken down into their individual pitches.

²⁰Cf. *Mus. ench.* 1 (ed. Schmid p. 1, ll. 1-5); see also Quintilian *Inst. Orat.* 1,4,6 and Calcidius *Comm. in Timaeum Platonis* 1,44. A similar analogy occurs in *Lucidarium* 9.1.2. where the ditones are called 'words'.*

¹Capitulum tertium: ²Quid sit sonus, quid phthongus, quid tonus, quid semitonium minus, cum his quae redundant ex illis.

³Ecce liquet quoniam Jubal, quem natura primum canere docuit, sicut suum idioma proprium absque vocalibus et consonantibus enuntiare nequibat, ita nec ullatenus cantare, si non aliquas de suprascriptis melorum speciebus, aut, ut magis proprie loquar, e toni semitoniique compositionibus proferret. ⁴Ob quod absurdum non estimo, non aliter quam alphabeti nostri litteras in vocales partiri solemus et consonantes ac iterum in mutas, semi-vocales ac liquidas, huiusmodi quoque musicales syllabas et sonoras quonammodo dictiones hic primum suis in partibus dividere, quo necnon vocabulo quaelibet per se vocitetur quoque modo diffiniatur declarare. ⁵Quoniam, ut dixi, Jubal haec omnia prius humana voce discrevit, ac forsitan in organo, liris et citharis, sola iuvante natura, multum exercuit, ac ubi vero rerum causas inquirendo multa naturae secreta reserasset, normam docendi coevos invenit.

⁶Diffinitio soni generalis: *sonus* ergo, iuxta Boetium, *est percussio aeris indissoluta usque ad auditum*. ⁷*Sonus* autem non ille generalis, sed quem *Graeci phthongon appellant*, est, ut ait isdem Boetius, *vocis casus emmeles, id est, aptus melo, in unam intentionem*. ⁸*Intervallum* vero, dicit adhuc, *soni est acuti gravisque distantia*. ⁹Phthongi ergo soni sunt, sed proprie musici qui scilicet legitimis ab invicem distant spatiis, et sunt ad cantandum aptissimi.

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|----|---------------------------------|
| 1. | A 2r H 2v |
| 2. | his <i>om</i> A |
| 3. | quem <i>om</i> A |
| | loquitur <i>pro</i> loquar A |
| | proferrent H |
| 4. | exstimo <i>pro</i> estimo A |
| | vero <i>in marg</i> H |
| 7. | phthongi <i>pro</i> phthongon A |

¹Chapter III: ²The definitions of *sonus*, *phthongus*, *tonus*, and *semitonium minus*. In connection with these topics, the things which emanate from them.

³It is clear then that Jubal, the first whom nature taught to sing, could not speak in his native language without using vowels and consonants. Similarly, he could not sing without producing at least some of the melodic formulae mentioned above, or, to speak more precisely, the structures made up of the tone and semitone. ⁴As our custom is to divide the letters of our alphabet into vowels and consonants, and to sub-divide them into mutes, semi-vowels and liquids, similarly, I think it a good idea first to divide musical syllables and 'sound utterances' into their basic units, and then to explain what terminology is adopted for each one, and how it is defined.²¹ ⁵Further, as I have already pointed out, Jubal had already made these distinctions in the field of the human voice, and possibly had employed them greatly in playing the organ, the lyre and the cithara, solely with the help of nature. When he had unlocked her many secrets by researching into the meaning of things, he found a way of teaching his discoveries to his contemporaries.

⁶The definition of general sound: sound, according to Boethius, consists of a disturbance of the air which remains intact until it reaches the ear.²² ⁷I do not mean sound in general, but that which the Greeks call *phthongos*, which, as Boethius again points out, is an *emmeles*, that is to say, musical, resolution of the voice onto a particular pitch.²³ ⁸He also points out that an interval is the distance between a high and a low pitch.²⁴ ⁹Therefore, *phthongi* are sounds which are particularly musical ones; they are separated from each other by established distances and are particularly suitable for singing.²⁵

²¹Cf. Quintilian *Inst. orat.* 1,4,6.and above note 20.

²²*De inst. mus.* 1,3 (189, 22-23).*

²³*De inst. mus.* 1,8 (195, 2-3).*

²⁴*De inst. mus.* 1,8 (195, 6).*

²⁵Cf. *Mus. ench.* 1 (3,7-8): Ptongi autem non quicumque dicuntur soni, sed qui legitimis ab invicem spaciis melo sunt apti.

¹⁰Illud autem spatium, quod est inter phthongon et phthongon, appellatur intervallum.

¹¹De tono: tonus est duorum phthongorum legitimis spatiis ab invicem distantium quam integra modulatio; diciturque tonus a tonando quod de phthongo perfecte tonet in phthongon, nec habere valet ultra solum intervallum.

¹²Omnes siquidem huiusmodi canorae coniunctiones unum semper minus habent intervallum quam habeant voces.

¹³De minori semitonio: semitonium minus est duorum phthongorum legitimis spatiis ab invicem distantium non integra modulatio. ¹⁴Dictumque semitonium non a *semi*, quod sit *medium*, immo sicut dicitur *semivir* aut *semivivus imperfectum*, non enim medius tonus est, sed de duabus toni partibus pars minima, quod perfecto demonstratur in Boetii musica.

¹⁵De ditono: ditonus est trium phthongorum ac duorum tonorum adunatio, dictus a *duo* Graece quod est *duo* Latine, nam etsi tres sonos sive voces habeat, duos tantummodo tonos in suis spatiis occupat.

¹⁶De semiditono: semiditonus quaedam est trium similiter phthongorum sed toni tantum ac semitonii minoris copulatio, dictus a *semi* sicut semitonium et ditonus, quasi non perfectus ditonus.

11. de *supra lin A*
 phthongon *scripsi* phthongom A phthongum H
 14. pars *in marg H om A*

¹⁰That distance between one pitch and another is called an interval.

¹¹The tone: a tone is an absolutely complete progression between two pitches which are separated from each other by established distances. The word *tonus* is derived from the verb *tono*, because it produces a perfect tone between one pitch and the next; it cannot contain more than one interval. ¹²Certainly, all harmonious pitch combinations of this kind always have one interval less than they do pitches.

¹³The minor semitone: the minor semitone is not a complete progression. It is made up of two pitches separated from each other by established distances.

¹⁴The word 'semitone' is not derived from *semi* in the sense of 'half', but in the sense of 'imperfect' as it is used in the words *semivir* or *semivivus*.²⁶ It does not represent the halfway point in a whole tone; rather, it refers to the smaller of the two divisions of the whole tone. This is clearly explained in the *De Musica* of Boethius.²⁷

¹⁵The ditone: this is made up of three pitches, and is a combination of two whole tones. It is derived from the Greek *δυο*, which is the Latin word *duo*. For even though it contains three sounds or pitches, it contains only two tones within its range.

¹⁶The semiditone: this is similarly made up of three pitches, but is a combination of a whole tone and a minor semitone. The word is made up from *semi*, as in *semitone*, and *ditonus*. It is, as it were, an imperfect ditone.

²⁶For 'semi' meaning 'imperfect', cf *Lucidarium* 2.5.18, *Micrologus* 4,5 (p. 103), and Johannes Afflig. *Musica* in GS 2, p. 238. For use of 'semivir', see *Summa musicae* in GS 3 p. 210.*

²⁷See, e.g., *De inst. mus.* 1,16 (203,8-9): Sed utraque semitonia nuncupantur, non quod omnino semitonia ex aequo sint media, sed quod semum dici solet, quod ad integritatem usque non pervenit. See also, *De inst. mus.* 1,7; 2,29; 3,1.

¹⁷De tritono: tritonus quatuor phthongorum est ac trium tonorum valde discors aggregatio, sic a *tris* atque *tonus* dicta, cum sit ex tribus tonis contiguus tota confecta.

¹⁸De diatessaron, prima consonantia: diatessaron quatuor est phthongorum ac duorum tonorum uniusque semitonii minoris aggregatio, dicta quidem a *dia* quod est *de* vel *per* et *tessara quatuor*, eo quod sit de quatuor sonis effecta.

¹⁹Haec est prima trium perfectarum consonantiarum atque simplicium; sicut enim in alphabeto, demptis quinque vocalibus, aliae litterae consonantes sunt, ita quidem, separatis hic tribus perfectis consonantiis, aliae sunt omnes dissonantiae, quamquam ditonus ac semiditonus, tonus cum diapente sive semitonium et huiusmodi sint compassibiles. ²⁰De quibus loco suo tractabitur, ut spero, diligentius.

²¹De diapente perfecto: diapente perfectum est quinque phthongorum atque trium cum uno semitonio minori tonorum connectio. ²²Dicta siquidem a *dia* quod est *per* aut *de*, et *pente quinque*, nam de quinque sonis haec tota conficitur secunda simplex et perfecta consonantia. ²³Quadruplex est etiam, sicut et diatessaron triplex, tot etenim species habere potest omnis coniunctio vocum quot intervalla possidet, de quo tractandum est diligenter in sequentibus.

²⁴De diapente imperfecto: diapente non perfectum est etiam quinque phthongorum, sed duorum dumtaxat tonorum ac duorum minorum semitoniorum discors quaedam compositio.

19. (hic) se (tribus) *dele* H

20. supero *pro* spero A

¹⁷The tritone: this is made up of four pitches, and three whole tones. The interval produced by these sounds is very dissonant. The word is made up from *tris* and *tonus* because its total range is made up of three adjacent whole tones.

¹⁸The diatessaron, the first consonance: this is made up of four pitches, and is a combination of two whole tones and a minor semitone. The term is derived from *dia* which (in Latin) means *de* (from) or *per* (through), and *tessera*, which (in Latin) is *quatuor* (four). This is because the interval is made up of four sounds. ¹⁹This is the first of the three perfect simple consonances. Just as in the alphabet, if we take away the five vowels, we are left with consonants, so if we take away the three perfect consonances, all the rest are dissonances; though the ditone and semiditone, the diapente plus tone, and the diapente plus semitone and others of this type, are compatible.²⁸ ²⁰I shall discuss these in greater detail, I trust, in the appropriate place.

²¹The perfect diapente: this is made up of five pitches—a combination of three whole tones and a minor semitone. ²²This term is derived from *dia*, which translates as *de* or *per*, and *πεντε* which is the Latin *quinque*. The whole of this second consonance is made up of five sounds, and is a simple, perfect consonance. ²³It is made up of four intervals, in the same way as the diatesseron is made up of three; each combination of pitches is able to contain as many species as it has intervals, but I shall treat this matter in greater detail in the following pages.

²⁴The imperfect diapente: there is also an imperfect diapente consisting of five pitches, but it is a dissonant combination of only two tones and two minor semitones.

²⁸Concerning *compassibilis*, cf. below *Pars secunda* 3.2.. For Marchetto's coinage of the term, see Introduction, p. 75.

²⁵De tono cum diapente: tonus cum diapente sex phthongorum est et unius semitonii minoris cum quatuor tonis quaedam auditui compassibilis copulatio.

²⁶De semitonio cum diapente: semitonium cum diapente sex etiam phthongorum est, sed duorum minorum semitoniorum cum tribus tonis integris quaedam quoque non tota discors coacervatio.

²⁷De ditono cum diapente: ditonus cum diapente septem est phthongorum et cum uno minori semitonio discors tota quinque tonorum associatio.

²⁸De semiditono cum diapente: semiditonus cum diapente septem est etiam phthongorum, sed cum duobus semitoniis minoribus quatuor tonorum quae tota discordat collectio.

²⁹De diapason, perfectissima consonantiarum ac tertia simplicium: diapason est octo phthongorum legitimis ab invicem spatiis distantium ac quinque tonorum cum duobus semitoniis minoribus dulcissima modulatio, dicta videlicet a *dia* quod est *de* vel *per*, et *pan*, *omne* vel *totum*, eo quod omnes huiuscemodi vocum aggregationes ipsa contineat et, ut pia mater, in sinu suo foveat ac enutriat. ³⁰Haec tertia consonantia simplex atque perfecta quae, iuxta datam regulam, octo voces habet, intervalla septem et septem species, de quibus disserendum est dum tempus venerit per singula. ³¹Quam profecto, si sibi diapente copules, iam duplicem effectam diapason diapente vocabis, et si diapason duplices, bisdiapason erit; sicque bisdiapason cum diapente et terdiapason replicare potes in infinitum.

25. auditui compassibilis *in marg* H

26. quaedam quoque non tota discors *in marg* H

29. nutriat A

²⁵The tone plus diapente: this interval contains six pitches—four whole tones plus a minor semitone: it is a sound not incompatible to the ear.

²⁶The semitone plus diapente: this interval also contains six pitches, but made up of two minor semitones and three whole tones. It too produces a combination of sounds which is not totally dissonant.

²⁷The ditone plus diapente: this interval contains seven pitches; its combination of five whole tones and a minor semitone produces an absolute dissonance.

²⁸The semiditone plus diapente: this interval also contains seven pitches, and its combination of four tones and two minor semitones is also an absolute dissonance.

²⁹The diapason is the most perfect of the consonances and the third of the simple ones. The diapason contains eight pitches separated from each other by established distances. It is made up of five whole tones and two minor semitones, and is a very pleasing combination of sounds. The term is derived, of course, from *διὰ* (in Latin *de* or *per*) and *πᾶν*, which translates into Latin as *omne* or *totum*. This is because it contains within itself all the combinations of such sounds and, like a devoted mother, cherishes them in its embrace and gives them nourishment. ³⁰This third consonance is simple and perfect. It contains eight pitches, and, according to the established rule, seven intervals and seven species within it, which I must discuss individually when the time comes. ³¹If one couples the diapente to this interval, you will then refer to this as a compound interval, the diapason diapente. If one doubles the diapason, the interval thus formed will be the bisdiapason. Thus, one can continue doubling to form the bisdiapason diapente and so on up to the terdiapason.

³²Inter quas etiam cadunt ditonus cum diapason aut semiditonus cum eodem, et tonus cum diapason, diapente vel semitonium identidem. ³³Quae quidem dissonantiae compositae sunt, sed compassibiles ut in simplicibus. ³⁴Non haec tamen rerum innovatio, sed praecedentium eiusdem naturae vocum replicatio. ³⁵Quod totum utique simul in una figura collectum, si paucis subiectis litteris demonstretur, puto visus humanus in ea satis delectabitur et sensus capacior erit.

³⁶Sit igitur A **♭** tonus, **♭** C semitonium minus, CD tonus, DE tonus, EF semitonium minus, FG tonus, G et iterum A tonus, A autem et **♭** sic quadratum tonus, sed A et **♭** sic rotundum sit semitonium minus. ³⁷Tunc quod AC non sit semiditonus quis velle dicere praesumat et AD diatessaron, AE diapente, AF semitonium cum diapente, AG semiditonus cum diapente, et Aa diapason perfectum? ³⁸Nam et CE ditonus est, et BF diapente non perfectum, F autem ad **♭** quadrum tritonus, et D **♭** quadrum tonus cum diapente, C **♭** quadrum ditonus cum diapente, verum **♭** primum ac **♭** rotundum inter se gignunt diapason imperfectum. ³⁹Octo namque phthongos habet sicut et illud optimum, sed quia cum tribus semitoniis minoribus tonos quatuor tantummodo colligit, ad illius veri diapason dulcissimam concordiam non pertingit.

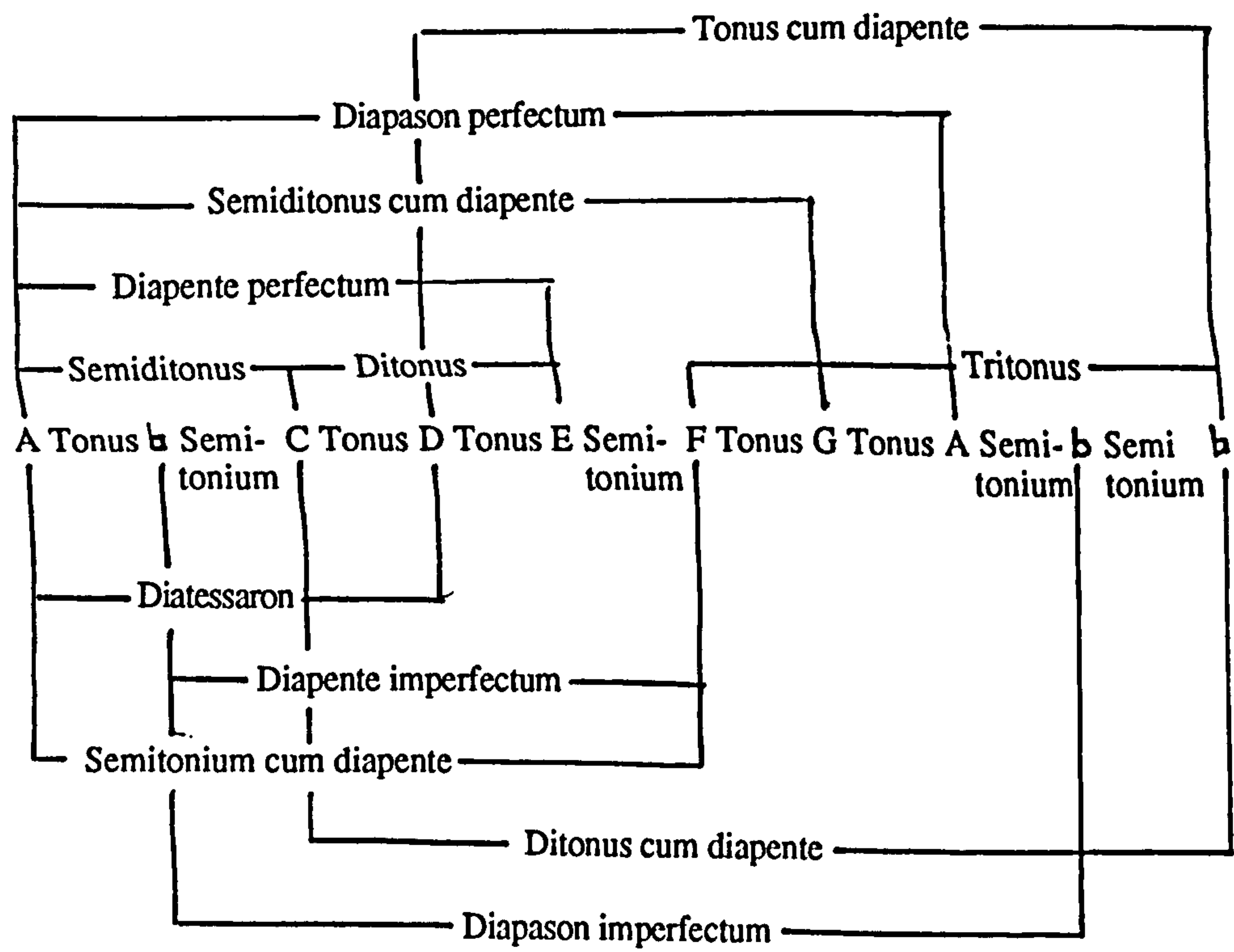
32. in ter *pro* inter A
 35. capatior A
 36. si *pro* sit A
 minus in marg H
 37. et om A
 39. et om A

³²Between these intervals fall the ditone plus diapason, the semiditone plus diapason, the tone plus diapason, the semitone plus diapason, the semitone or tone plus diapente diapason, and so on. ³³These compound intervals are, strictly speaking, dissonant, but are compatible, like their simple counterparts. ³⁴They are not new intervals, but a doubling up of intervals of the same nature which we have mentioned previously. ³⁵All this material, in any case, can be collated onto one diagram; if it can be explained by the use of a few basic letters appended, I consider that the human eye will take pleasure from it, and our understanding be improved.

³⁶Let us therefore establish the following: the distance between A and ♭ is a whole tone; from ♭ to C a minor semitone; from C to D a whole tone; from D to E a whole tone; from E to F a minor semitone; from F to G a whole tone; from G to A again a whole tone; from A to square ♭ is a whole tone, but the distance between A and round b is a minor semitone. ³⁷Then no-one will dare deny that A to C forms a semiditone, A to D a diatessaron, A to E a diapente, A to F a semitone plus diapente, A to G a semiditone plus diapente, and A to a a perfect diapason. ³⁸C to E forms a ditone, ♭ to F an imperfect diapente, F to square ♭ a tritone, D to ♭ a tone plus diapente, and C to square ♭ a ditone plus diapente. However, the first square ♭ and the round b produce between them an imperfect diapason. ³⁹This interval contains eight pitches, as does its perfect counterpart, but since it is formed from three semitones and four whole tones only, it does not achieve the perfect harmony of the true diapason.

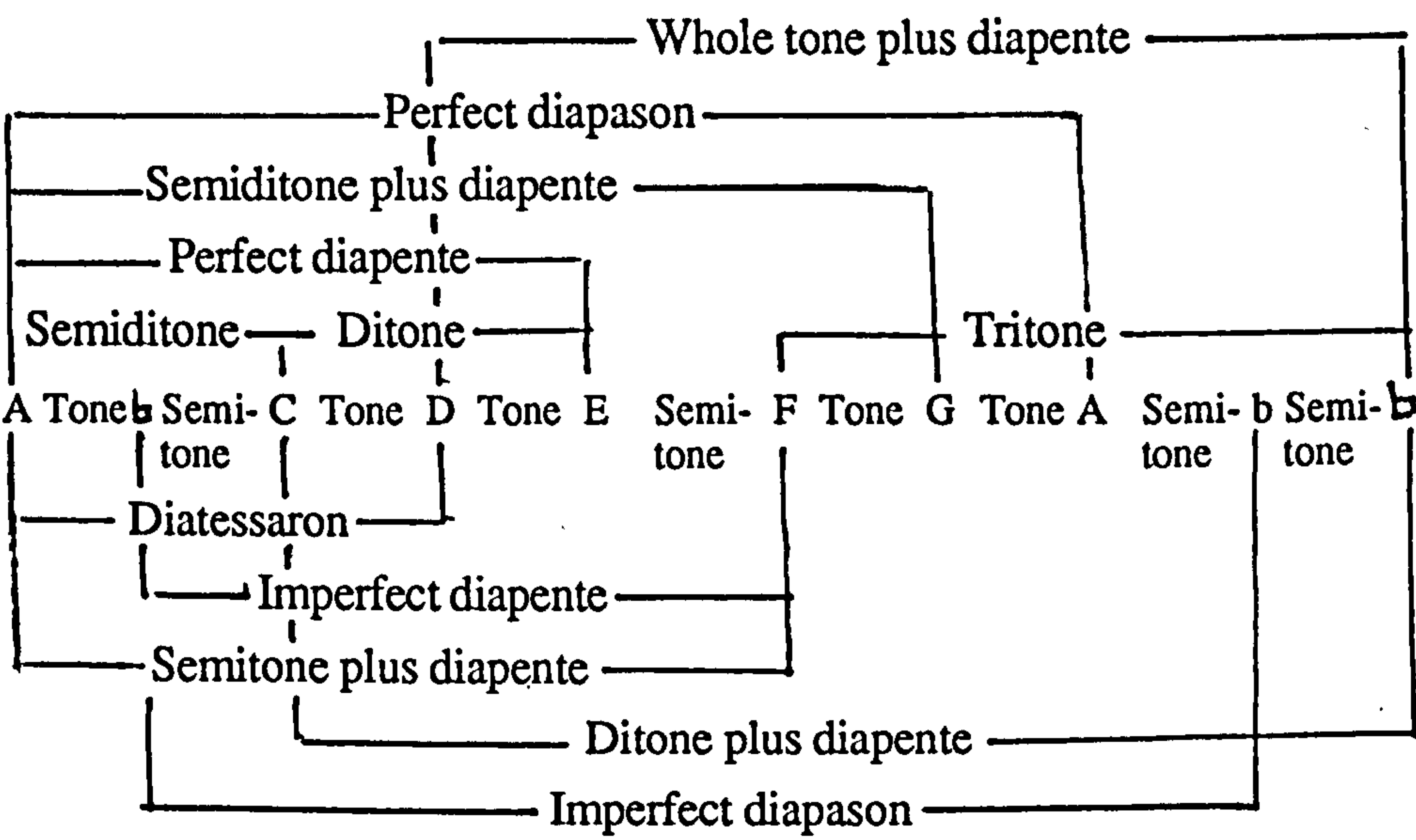
40FIGURA VOCUM OMNIUM CONIUNCTARUM

Quicquid Jubal cecinerit seu canendo protulerit; quicquid Graecus aut Italicus quidve Gallus aut barbarus. Aliud nemo cecinit neque potest aut potuit modulari viriliter quam quod hic annotavimus.



40A DIAGRAM SHOWING ALL THE COMBINATIONS OF SOUNDS

Whatever Jubal sang, or produced by singing; whatever the Greek, the Italian, the Frenchman or the barbarian sang. No-one ever sang anything else; no-one is able, or ever has been able to sing properly other than by using what we have drawn here.



¹Capitulum quartum: ²De primo et antiquissimo tetrachordo: quale fuerit ac unde venerit.

³Praesto nunc, o cantores, qui naturam vocum et sonorum his nostris temporibus ignoratis, nunquam vidistis viros a natura tam mirabiliter modulari voces ut iam non dicam melius, sed certe multo lascivius quam vos illi canant, et nihilominus regulas vestras, ciferas, litteras et characteres, notas atque mensuras non intelligunt? ⁴Quis in civitate Mantua citharoedum illum quem appellabant 'passerem' non vidit, qui novas in harpa sua saepe fabricavit, me teste, cantiones, quas nunquam per se tamen describere scisset? ⁵Alius etiam civis extitit illis in diebus in eadem Italica civitate qui tumultuarias quoque componens cantilenas, atramento vel carbone pinxit aliquando magis quam scripserit, quas nemo quidem canere praesumpsisset unquam nisi quidam cantor mihi notus more communi prius illas descripsisset. ⁶Nunc autem quis dubitet quoniam Jubal a principio sic egerit? ⁷Instigante siquidem natura primo cecinit, ac postea paulatim discrevit sonorum differentias, fecitque fortassis organum et citharas, dulces cantiones etiam composuit, deinde aetas longaeva rerum causas investigat et exercitat sensus. ⁸Quo tamen ritu coevos suos modulari docuerit, aut quibus ad docendum et scribendum usus sit notis, litteris, ciferis, characteribus, aut quibus canendo nescitur, etsi credendum sit Noe filios post diluvium suaves iterum hominibus tradidisse canendi modulos,

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1. A 4r et hoc capitulum om in toto H
 5. tumultuarias scripsi tumulas A
 notus scripsi noctus A
 7. exercitat scripsi exercitati A

¹Chapter IV: ²Concerning the first and oldest tetrachord: its nature and its source.

³Give some attention to this, you singers who are not conversant with the nature of pitches and sounds during these times. Have you never encountered men who pitch their voices so instinctively and so beautifully that they sing not better admittedly, but certainly more uninhibitedly than you, but do not understand your rules, your ciphers, your letters, characters,²⁹ pitches and metres? ⁴There can be no-one in the city of Mantua who has not seen the lyrist whom they called "The Sparrow"* in my presence, he often composed original melodies on his harp, but he would never have known how to write them down by himself. ⁵In fact, there was another inhabitant of the same city at that time who also improvised melodies: he would sometimes paint them, rather than notate them, with black ink or carbon. As a result, no-one would ever have dared to sing them if a certain singer of my acquaintance had not written them out, using the familiar notation. ⁶Now who can be in any doubt that Jubal would initially have acted in this way?³⁰ ⁷Certainly at the beginning he sang instinctively, but then gradually he discovered the differences between sounds; he probably built an organ and some lyres, and composed sweet melodies. Then his long life gave him the opportunity to delve into the nature of things and to cultivate his sensitivity. ⁸No-one knows however how he taught his contemporaries to sing, or what notes, letters, cyphers or characters he used for teaching and writing, or which he used for singing. However, we must believe that after the Flood, the sons of Noah passed on to their fellow men in turn beautiful melodies to sing.

²⁹Concerning the term *character*, see F. Reckow in *Handwörterbuch de musikalischen Terminologie* (Wiesbaden, 1970). * For an analagous useage of the term, see *Micrologus* 5, 21 (p. 113).

³⁰Cf. above nn. 4 and 6.

maxime Japhet qui totus, ut legitur, virtuti deditus erat, et a quo nobis illa philosophorum emanavit progenies, totaque Graecorum et aliarum omnium fere nationum gentilitas.

⁹Nam et primas illas quatuor chordas, quarum Graeci iactitant inventorem extitisse Mercurium, opinor magis ante diluvium ab ipso Iubal exquisitas ac inventas, sed et ad docendum in ordine dispositas atque regulatas, deinde post diluvium a praefatis Noe filiis novae genti novisque populis ita sicut prius erant fuisse traditas. ¹⁰In ea namque musica, quam totiens allegatus Boetius de Graeco vertit in Latinum, legitur illam a principio fuisse simplicissimam, adeo quod quatuor nervis ipsa tota constaret. ¹¹Inde tetrachordum a quatuor chordis appellatum est. ¹²Primus autem nervus et quartus diapason invicem resonabant consonantiam, medii vero simul tonum habentes, ad extremos diatessaron ac diapente reddebant, quod totum his quatuor litteris sequens figura demonstrat. ¹³Si ergo diatessaron AB, tonus autem BC, quisque AC diapente sit negare poterit? ¹⁴Iterumque si BD diapente sit et diatessaron AB resonabit, et AD diapason perfectissimum erit.

8. nationum *scripsi* nationem A

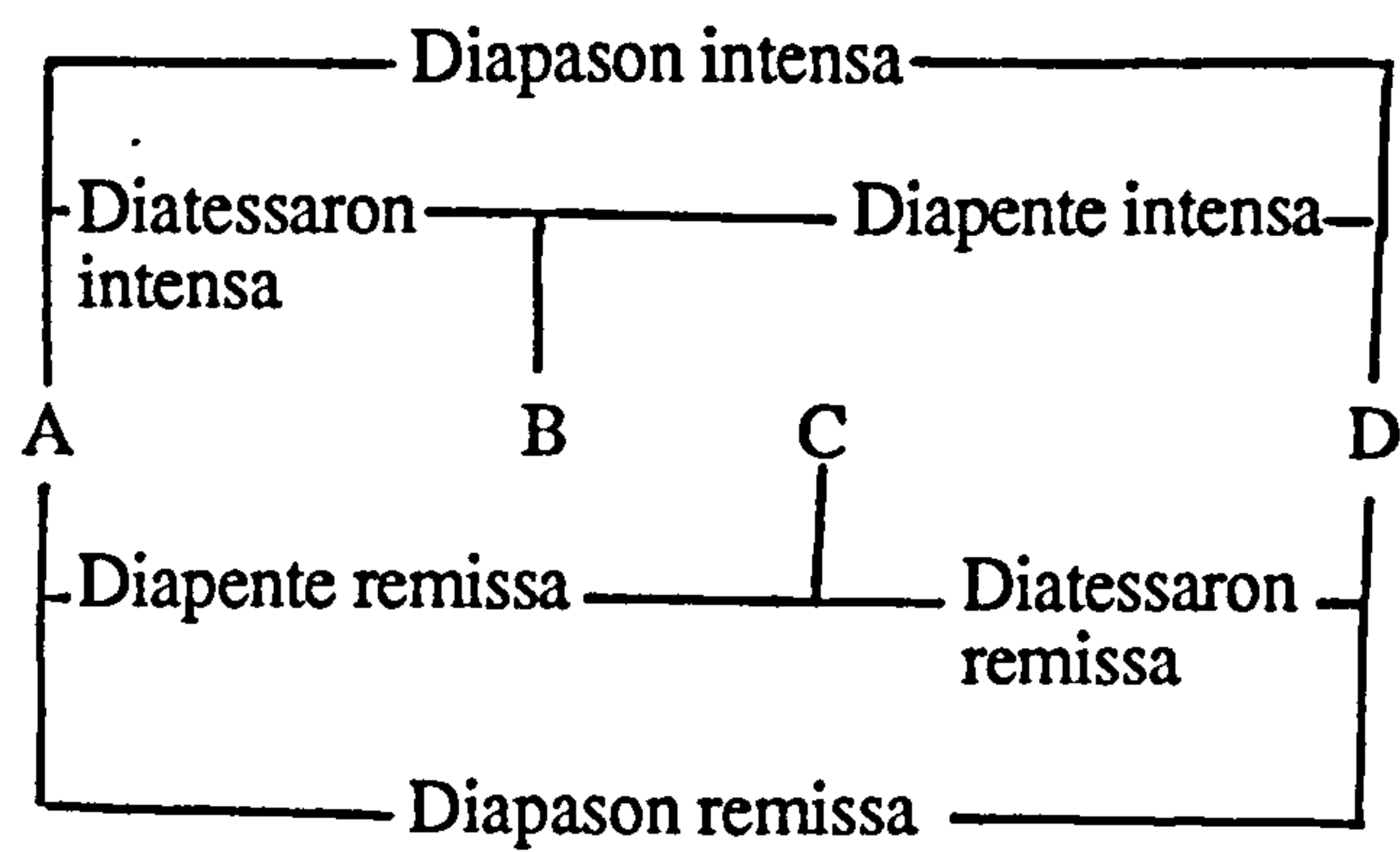
This is particularly true of Japhet, who was totally committed to goodness, so we read.³¹ It is from him that the noble line of philosophers sprang, together with the entire pagan learning of the Greeks and of almost every other nation.

⁹It is my opinion that the first four pitches—which the Greeks claim were invented by Mercury—existed rather before the Flood: that they were sought after and discovered by Jubal himself, and later arranged and tabulated for teaching purposes. Then, after the Flood, they were handed down by the above-mentioned sons of Noah, in their original state, to the new nation and new peoples. ¹⁰In that treatise on music, which Boethius—so often referred to—translated from Greek into Latin,³² we read that it was the most simple of all types of music at that early stage because it consisted entirely of only four pitches. ¹¹So it was called *tetrachordum* because it contained four strings. ¹²The first and fourth strings produced between them the consonance of a diapason, the middle strings together comprised a tone, and produced a diatessaron and a diapente with the outer strings. The following diagram demonstrates all this with the following four letters: ¹³if A to B is a diatessaron, and B to C is a tone, then clearly the distance from A to C must be a diapente. ¹⁴Again, if from B to D we have the distance of a diapente, and the interval between A and B is a diatessaron, then the distance between A and D will be an absolutely perfect diapason.

³¹This reference to Japhet cannot be traced.

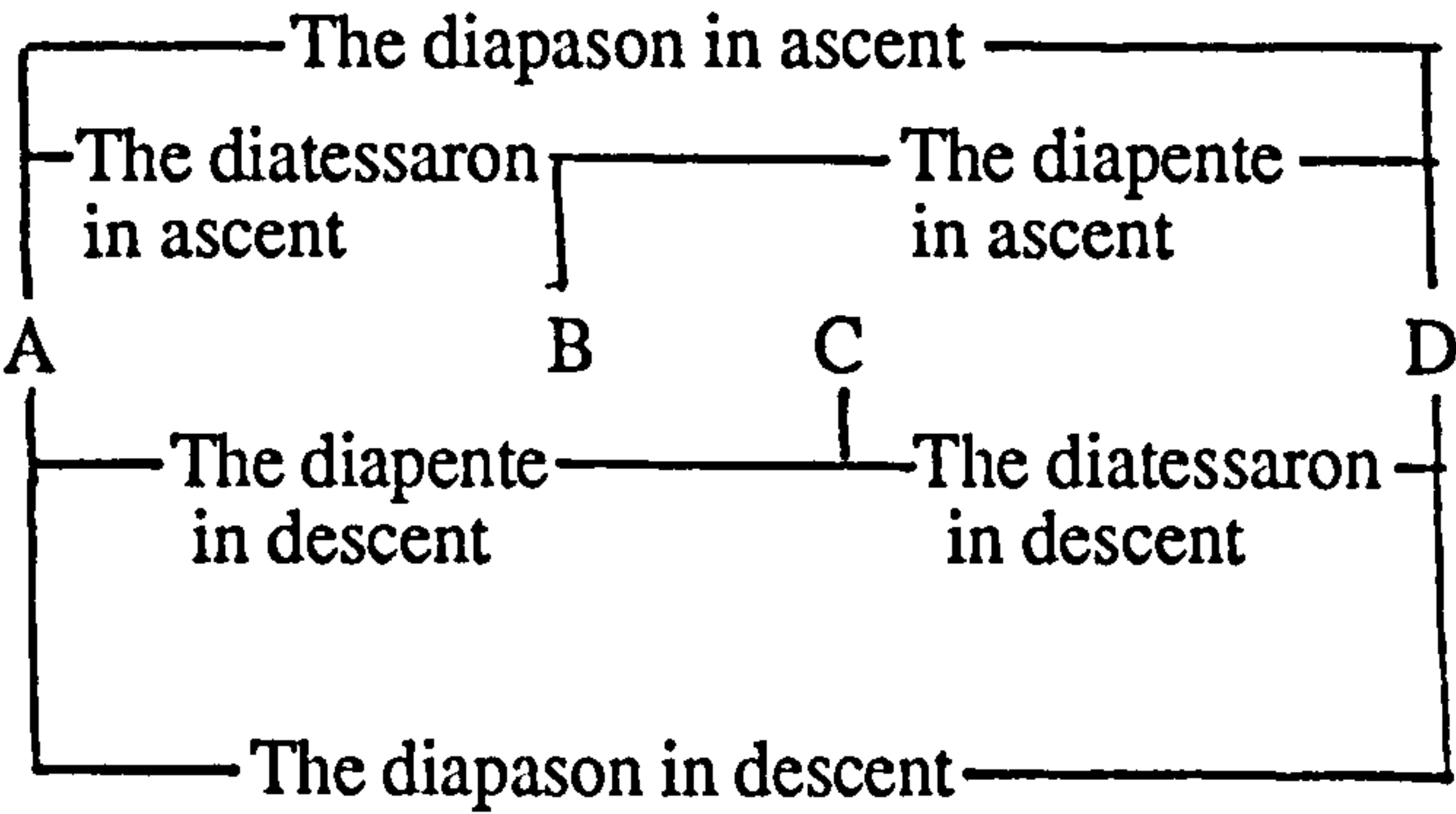
³²The treatise would be Nicomachus's lost *Peri mousikes*, cited in *De inst. mus.* 1,20 (205,28-206,7).*

15Hoc tetrachordum omnium primum ac vetustissimum creasse Graeci iactitant ac fecisse Mercurium, sed illud magis traditum renovatis hominibus a Noe succe[ssu]ribus, opinor, post diluvium.



in figura: (Diatessaron) intensam A

¹⁵The Greeks claim that Mercury invented and constructed this tetrachord, which is the first and oldest of them all. However, I think that it was handed down after the Flood by the descendants of Noah to humankind which had been given a new lease of life.



¹Capitulum quintum: ²Addidisse philosophos suprascriptis chordis et alias undecim per intervalla temporum, nec unquam illos excessisse quindecim numerum.

³Porro philosophi Graeci quatuor illis nervis adhuc undecim alias apposuerunt chordas per intervalla temporum, quod qualiter aut quomodo si scire cupis, lege Boetium in primo suae musicae libro, ibique reperiēs non id modo quod quaeris, sed ipsorum quoque nomina philosophorum. ⁴Sensati namque viri quod omnis vox aut continua sit aut intervallis suspensa non ignorabant, et idcirco se posse plures adhuc tantillo numero superaddere chordas non dubitarunt. ⁵Attamen quindenum numerum transcendere nunquam voluerunt. ⁶Est enim vox illa continua qua prosas legere solemus et historias verba loquendo verbis subiungere, quae nimirum a sola natura moderari potest ne sit infinita, dum loqui tantum valeat homo seu legere quantum anhelitus eius duret aut queat respirare. ⁷Quae vero dicitur intervallis suspensa vox est qua musicos elevare solent homines aut deprimere sonos; quae quidem et ipsa modum non habet si non refrenetur a natura, nam ultra non gravat homo vocem quam valeat sonos alacriter exprimere, nec adeo si sit prudens scandit in altum ut dubitet deficere. ⁸Quisnam oro fere mortalium, si vocem elevet ultra quintam decimam, fere non deficiat, aut si tantum illam relaxet, confusus non erubescat?

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1. A 4v H 5r
 2. Addidisse philosophos.....Capitulum Quintum *om* H
 3. repies *pro* reperiēs A
 5. valet *pro* valeat A
 7. vero *om* H
 - deprimere *pro* exprimere A
 8. oro *in marg* H oro fere *dele* H

¹Chapter V: ²The philosophers added eleven other pitches at different times to the ones mentioned above: they did not add any beyond fifteen.

³Further, the Greek philosophers added eleven more pitches, at different times, to the four already in existence. If you wish to know the nature of these, and how they arose, you should read the work of Boethius—the first book of his treatise on music.³³ There you will find not only what you seek, but also the names of the philosophers themselves. ⁴Perceptive men as they were, they were aware that all pitch is either continuous or interrupted by means of intervals.³⁴ Therefore, they did not doubt that it was possible to add more pitches to the pre-existent small number; ⁵however, they were never willing to exceed the total of fifteen. ⁶That line which we call 'continuous' is one which we normally use for reading prose passages and for joining words to each other when reciting historical accounts.³⁵ This clearly can be prevented from being infinite only by nature, for a man can speak or read only as long as his breath lasts, or as long as he can catch a second breath. ⁷That vocal line which is referred to as being 'interrupted by intervals'³⁶ is the one which men use to raise or lower musical sounds. This has no limit apart from the fact that it is controlled by nature; for a man does not lower his voice beyond the point at which he can produce sounds effortlessly.³⁷ Nor, if he is sensible, does he sing so high that he is uncertain about reaching it. ⁸I ask you, what man's voice would not break if he raised it higher than the fifteenth pitch, or if he lowered it to the same extent, would he not blush in confusion?

³³*De inst. mus.* 1,20 (206,7ff).

³⁴Cf. *De inst. mus.* 1,12 (199,3-4): Omnis vox aut συνεχῆ est, quae continua, aut διαστηματική, quae dicitur cum intervallo suspensa. Note ambiguity in Latin between 'voice' and 'pitch.'

³⁵Cf. *De inst. mus.* 1,12 (199,5-6): Et continua quidem est, qua loquentes vel prosam oratiorem legentes verba percurrimus.

³⁶Cf. *De inst. mus.* 1,12 (199,4): ... quae dicitur cum intervallo suspensa.

³⁷Cf. *De inst. mus.* 1,13 (200,1-5).

⁹Quod si quis se vidisse voces humanas obiecerit ad praefatum numerum superandum aptissimas, respondemus quod paucae sunt ad totius humani generis comparationem, et de his quae raro accidunt non datur regula generalis.

¹⁰Egit in hoc ergo per omnia prudenter philosophorum auctoritas, quae nobis ad cantandum docendum ac discendum, et omne quod canitur, si velimus describendum, optime providit, nihilque superfluum, aut inepte per incuriam ordinatum reliquit.

9. praefactum *pro* praefatum
A comperationem A

⁹Now if anyone disagrees, and claims that he has encountered human voices easily able to go beyond these limits, we reply that they are very few—relative to the size of the human race—and that we cannot form a general principle from these phenomena which occur so rarely.

¹⁰So the authority of the philosophers has proceeded wisely here in all respects—an authority which has admirably provided for us a means of teaching and learning the art of singing, and a method of describing, if we wish, everything which is sung. It has passed down to us nothing which is superfluous, or any ideas which are inadequately presented because of carelessness.

¹Capitulum sextum: ²Harum quindecim vocabula chordarum ac interpretationes earum.

³Chorda Prima: collectis itaque prout tradit Boetius quindecim tantummodo chordis, primam et omnium gravissimam vocavere philosophi Graece *proslambanomenos*, hoc est 'additam' vel 'appositam' seu 'acquisitam', eo quod quamquam ultima fuerit inventa, caeteris tamen sit necessario praelata.

⁴Chorda Secunda: *Hypate hypaton* idem est quae gravissima gravissimarum, quod quippe vocabulum antequam esset *proslambanomenos* iure sibi compete-
bat, cum tunc esset prima. Nunc vero tenet illud adhuc quamvis illa tono sit altior et secunda.

⁵Chorda Tertia: *Parhypate hypaton* iuxta gravissimam interpretatur gravissimarum, quae cum ab illa solo minori semitonio remota sit, suum optime gerit nomen ac vocabulum.

⁶Chorda Quarta: *Lichanos hypaton* 'index' appellatur non ab re 'gravissimarum', nam cum antiquitus esset in loco tertio distans a secunda chorda tono, mox indici monochordum occurrebat tangenti digito.

1. A 5r H 5r
2. (chordarum) ut (ac) *dele* A
4. esse *pro* esset A

¹Chapter VI: ²The terms used for these fifteen pitches, with their meanings.

³The first pitch: I have listed the pitches—only fifteen in number—as Boethius has handed them down to us.³⁸ The first and deepest of them all the philosophers called by the Greek word *proslambanomenos*, which means 'added', 'placed next to', or 'newly-acquired'.³⁹ The reason for this is that although it was the last to be invented, it is of necessity put in front of the others.

⁴The second pitch: the *Hypate Hypaton*. This likewise is the pitch which is the 'lowest of the lowest' because this term was properly appropriate for it before the existence of the *proslambanomenos*. It claimed this term as its right since at that time it was the first pitch. Now, it continues to have this term applied to it, although it is the second pitch and a tone higher than the first.

⁵The third pitch: the *Parhypate Hypaton* means 'next to the lowest of the lowest': as it is positioned only at a minor semitone's distance from it, it well deserves its title and its terminology.

⁶The fourth pitch: the *Lichanos Hypaton* is rightly referred to as 'the index finger of the lowest pitches'. for although in ancient times it occupied the third position at a tone's distance from the second pitch, it subsequently corresponded with the index finger as it touched the monochord.

³⁸For general description of the fifteen pitches, see *De inst. mus.* 1,20; for Boethius's translations of the names of the pitches, see *De inst. mus.* 4,3.

³⁹Boethius refers to the *proslambanomenos* as 'added' (*addita*) in *De inst. mus.* 1,20 (211,22); he further describes it with the term *adquisitam* in 4,3 (309,21). Boethius does not use the term *apposita* with respect to the lowest pitch. Martianus Capella *De nuptiis* likewise uses the term *adquisitus* (9,931). The naming of notes and their interpretations in the following lines does not follow Boethius or Martianus Capella.

⁷Chorda Quinta: *Hypate meson* 'gravissima' recte vocitatur 'mediarum', distans enim a praecedenti vicina tono, sicuti voces finit gravissimas, ita quidem inchoare probatur et medias.

⁸Chorda Sexta: *Parhypate meson* interpretatur 'iuxta gravissimam mediarum', nam ab illa solo scitur distare minori semitonio, quod est initium mediarum et origo.

⁹Chorda Septima: *Lichanos meson* Latine sonat 'index mediarum', quae tono distans a sua praecedenti socia, nomen alterius Lichanos a loci similitudine sortitur ac vocabulum.

¹⁰Chorda Octava: *Mese*, quae dicitur 'Media' iure duplici tale nomen habere debet, a subdita namque sibi vicina tono se tantum elevans, primum finit diapason a principali proslambanomenos vocula, rursusque sedens in loco medio, mater est omnium sequentium vocularum ac domina.

¹¹Chorda Nona: *Paramese* 'iuxta Mese' non immerito dicitur, nam si sit ab illa plus minusve tono remota, nusquam de septem diapason speciebus apparet una.

¹²Chorda Decima: *Trite Diezeugmenon* optime quidem interpretatur tertia disiunctarum, est etenim a mese locum habens tertium, quamquam ad paramese minus reddat semitonium.

-
10. quae *om* A
 (rursus) que *supra lin H om* A
 (sequen)tium *supra lin H*
 12. Chorda X H

⁷The fifth pitch: the *Hypate Meson* is rightly called the 'lowest of the middle pitches', for, lying at a tone's distance from its aforementioned neighbour, it forms the limit of the lowest pitches, and is accepted as being the start of the middle register.

⁸The sixth pitch: the *Parhypate Meson* means 'the pitch which is next to the lowest in the middle register', for it is known to lie at a distance of only a minor semitone from that pitch, which forms the beginning, and is the basis of the pitches of the middle tetrachord.

⁹The seventh pitch: the *Lichanos Meson*; this term, in Latin *index mediarum*, means 'the index finger of the middle pitches'. It lies at a distance of a tone from its neighbour mentioned above. It obtains the name and the terminology of the second *Lichanos* because of its similar position.

¹⁰The eighth pitch: the *Mese* which means 'the middle pitch', has to have such a name on two counts. It is only a tone higher than its lower neighbour, and it forms the upper limit of the first diapason, which begins with the principal pitch, the *proslambanomenos*. Further, it occupies a central position, and is the mother, and ruler of all the following pitches.

¹¹The ninth pitch: the *Paramese* is rightly referred to as 'the pitch lying next to the mese', for if it lay at more or less than a tone's distance from it, one of the seven diapason species would in no sense be realized.

¹²The tenth pitch: the *Trite Diezeugmenon* is well translated as 'the third of the disjunct pitches', for it occupies the third position from the mese, but is only a minor semitone's distance from the paramese.

¹³Chorda Undecima: *Paranete diezeugmenon* 'iuxta nete disiunctarum' versa de Graeco significat in Latinum, eo quod triten uno tono superans ad neten quoque tonando semel ascendat.

¹⁴Chorda Duodecima: *Nete diezeugmenon* a verbo Graeco *neate* iuxta Boetium 'inferior' appellatur 'disiunctarum', tono namque praescriptam paranete chordam superans, novissimam omnium disiunctarum vocem emittit atque iuniorem.

¹⁵Chorda Tertia Decima: *Trite hyperboleon* iure 'tertia' nominatur 'superiorum' aut 'excellentium', altius namque solo minori semitonio quam nete vicina sua prodiens, etsi certe graviolem, tertium nihilominus a superiori nete locum occupat.

¹⁶Chorda Quarta Decima: *Paranete hyperboleon* 'iuxta nete' dicitur 'superiorum' eadem ratione qua paranete diezeugmenon, scilicet pro eo quod ad illam per tonum pergat similiter.

¹⁷Chorda Quinta Decima: *Nete hyperboleon* 'inferior superiorum' interpretata probatur eodem argumento quo nete diezeugmenon, videlicet ultima namque superiorum est, sicut illa disiunctarum, soloque tono vicinam sibi subditam superat.

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- | | |
|-----|--|
| 13. | (quoque) semel (tonando) <i>dele</i> H |
| 14. | Chorda XII H
parinete A
vocum <i>pro</i> vocem A |
| 15. | Chorda XIII H
at <i>pro</i> aut A
pergat H |
| 17. | inferior.....diezeumenon <i>in marg</i> A |

¹³The eleventh pitch: the *Paranete Diezeugmenon* means 'next to the nete in the disjunct pitches' when translated from Greek into Latin, because it is higher than the trite by a whole tone, and has to climb a tone to reach the nete.

¹⁴The twelfth pitch: the *Nete Diezeugmenon*, derived from the Greek word 'neate' according to Boethius, is referred to as the lowest of the disjunct pitches,⁴⁰ for it lies at a tone's distance above the previous paranete. It produces the newest and most recent sound of all the disjunct pitches.

¹⁵The thirteenth pitch: the *Trite Hyperboleon* is rightly called the third pitch in the highest or outstanding pitches. It appears at only a minor semitone's distance from its neighbour the nete. Even though it occupies a deeper position, nevertheless it is only three pitches down from the higher nete.

¹⁶The fourteenth pitch: the *Paranete Hyperboleon* is so called because its position is adjacent to the nete in the highest pitches, on the same principle as the paranete diezeugmenon, which similarly travels the distance of a whole tone to reach its neighbour.

¹⁷The fifteenth pitch: the *Nete Hyperboleon* is rightly translated as 'the lowest pitch in the highest pitches' for the same reason as the nete diezeugmenon is so called—because it is the last of the upper pitches, just as the other is the last of the disjunct ones, and is higher than its neighbour underneath it by only a tone.

⁴⁰Cf *De inst. mus.* 1,20 (206,25): ...quasi neate id est inferior. 'Neate' is a Doric variant of 'nete'.

¹Capitulum septimum: ²Has quindecim chordas hic more Graeco per solum genus diatonicum divisas.

³His igitur expeditis, ac quindecim illis phthongorum vocum sive sonorum vocabulis satis ad propositum interpretatis, scire non erit absonum Graecis antiquis, valde curiosis, unam harum quindecim vocum nequaquam suffecisse distinctionem, immo tribus illas permutando tonos ac semitonia distinxere modis, primam utpote modulandi formam genus diatonicum, secundam autem enarmonicum, tertiam vero chromaticum appellantes. ⁴Veruntamen de solo diatonico, quod primum est verum ac perfectum, tractare dispono, quamquam de caeteris etiam duobus in totum silere nolim, captato tempore siquidem et loco congruo. ⁵Mater enim Ecclesia de tribus his generibus solum diatonicum ad omne quod canere velis aptissimum elegit, aliis reprobatis duobus, Deum utique laudare volens ad libitum, idque totum quod curiosum est magisve difficile quam consonum a se reiciens.

⁶Has igitur Graeci quindecim chordas in quatuor primo divisere tetrachordis, primum appellantes tetrachordum hypaton, id est 'gravissimarum', secundum autem tetrachordum meson, hoc est 'mediarum', tertium tetrachordum diezeugmenon, id est 'disiunctarum', quartum autem tetrachordum hyperboleon quod sonat 'superiorum'.

-
- | | |
|----|---|
| 1. | A 5r H 6r |
| 2. | hic <i>supra lin</i> H
(Graeco) divisas (per solum) <i>dele</i> H <i>add</i> A
divisas <i>in marg</i> H <i>om</i> A |
| 3. | Hae <i>pro</i> His A
vocalibus <i>pro</i> vocabulis A |
| 4. | siquidem tempore A
<i>in pro</i> et A |
| 6. | tetrachordum <i>in marg</i> H
est <i>om</i> A |

¹Chapter VII: ²These fifteen pitches at this point are classified in the Greek fashion only by the diatonic genus.

³Having settled these matters then, and having explained, sufficiently well for our purpose, the fifteen terms used for the *phthongi* pitches or sounds, it will not be out of place for us to be aware that, as far as the ancient Greeks were concerned*—and they were a very intellectually curious people—one version of the succession of fifteen pitches was not enough. They therefore distinguished them in three ways by changing the order of tones and semitones. The first type of singing they called the diatonic, the second the enharmonic, and the third the chromatic. ⁴However, I am inclined to deal only with the diatonic type, which is the first truly perfect type, though I would not wish to remain wholly silent about the other two, if there is time, and in the appropriate place. ⁵Mother Church chose only the diatonic type of the three as being the most suitable for what you feel inclined to sing—and rejected the other two. She wished nothing else but to praise God at will while rejecting all that is laboured, or is too difficult to be pleasing to the ear.

⁶These fifteen pitches then the Greeks divided up into four tetrachords ⁴¹ They called the first *Tetrachordon Hypaton*—that is, the one made up of the lowest pitches. The second was called *Tetrachordon Meson*, containing pitches in the middle register. The third they called *Tetrachordon Diezeugmenon*—the Tetrachord of the Disjunction. The fourth was the *Tetrachordon Hyperboleon* containing the highest sounds.

⁴¹*De inst. mus.* 1,20.

⁷Contemplantes namque philosophi solis tribus diatessaron differentiis inesse totam harmoniae virtutem—quicquid enim ultra fit replicatur et unum est—omnem istius modi per illam divisere vocum ordinem, duo simul tetrachorda connectentes, quibus tres exprimi probantur illius varietates. ⁸Nil aliud enim est hic tetrachordum quam perfecta consonantia diatessaron. ⁹Est autem eius prima species ab hypate hypaton in hypate meson secundum Graecos, quae currit per minus semitonium et tonum et tonum, et hoc, ut dixi, per solum genus diatonicum. ¹⁰Secunda vero pergit a parhypate hypaton ad parhypate meson, per tonum et tonum ac minus semitonium, a lichanos autem hypaton in lichanos meson tertia, currens utique per tonum ac minus semitonium atque tonum. ¹¹Cernis ergo quod sumant hic a semitonio minori tetrachorda semper exordium, quodque primum sit ab hypate hypaton in hypate meson, cui connectitur, ut patet in hac figura, statim secundum.

(Figura in pagina 176)

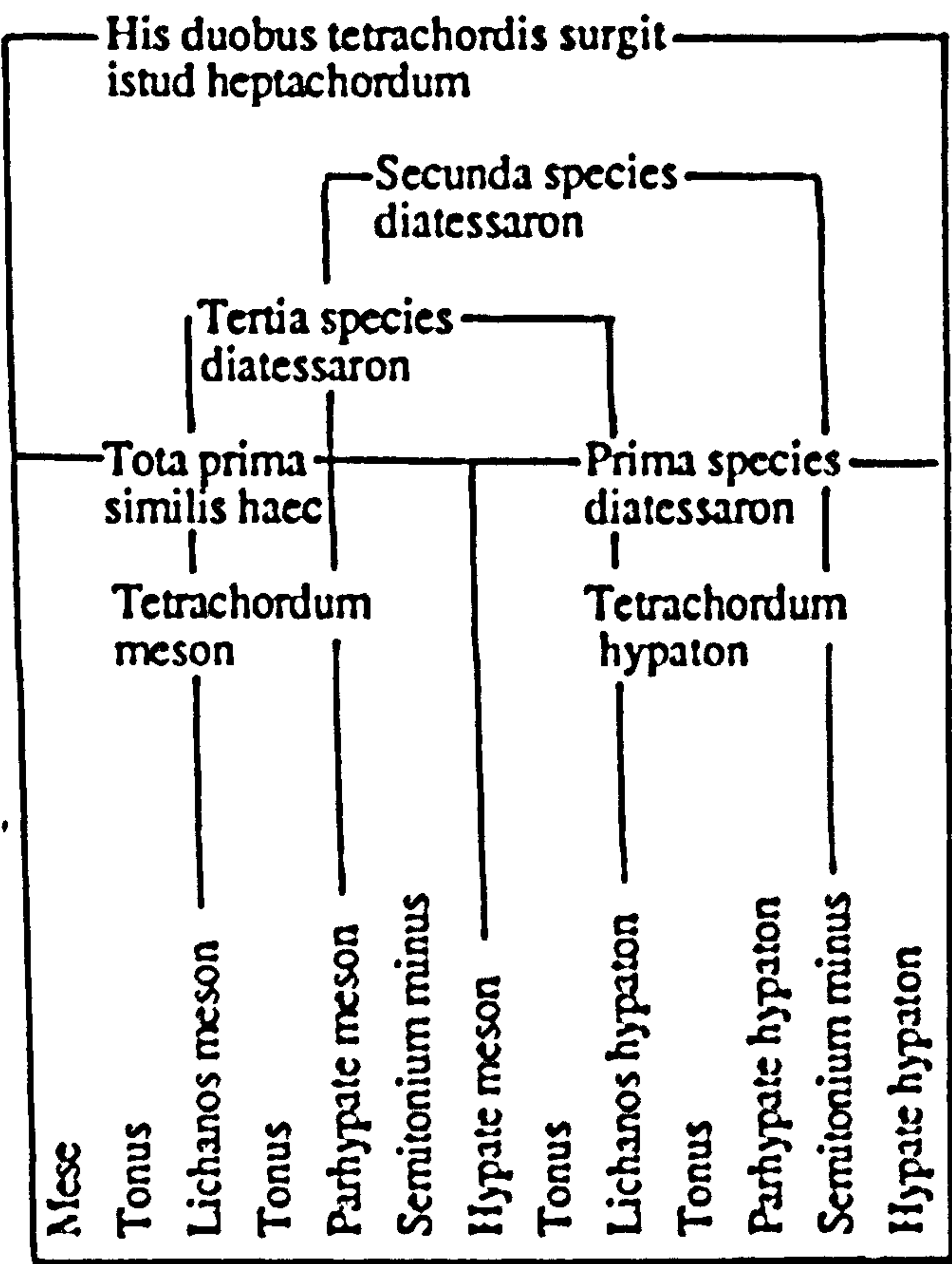
7. omnem *om* A
8. Nihil *pro* Nil A
 hic *supra lin* H
11. (quod) que *om* A
 (hypa)te (hypaton) *om* A

⁷The philosophers believed that the entire virtue inherent in the tonal structure lay solely in three species of diatessaron—for whatever lies beyond that range is a duplication and a reiteration—and they divided up every such order of pitches by this scheme, connecting together two tetrachords, by means of which three varieties of structure are produced. ⁸Here, the tetrachord is nothing but the perfect consonance of a diatessaron. ⁹The first species of diatessaron extends, according to the Greeks, from the hypate hypaton to the hypate meson.⁴² It progresses as follows: minor semitone, tone, tone, and this, as I have said, applies only in the diatonic genus. ¹⁰The second species extends from the parhypate hypaton to the parhypate meson, using the following order: tone, tone, minor semitone. The third extends from the lichanos hypaton to the lichanos meson in this order: tone, minor semitone, tone. ¹¹You see therefore that here the tetrachords always begin with the interval of a semitone, and that the first tetrachord extends from the hypate hypaton to the hypate meson, to which is connected conjunctly the second tetrachord, as the following diagram makes clear.

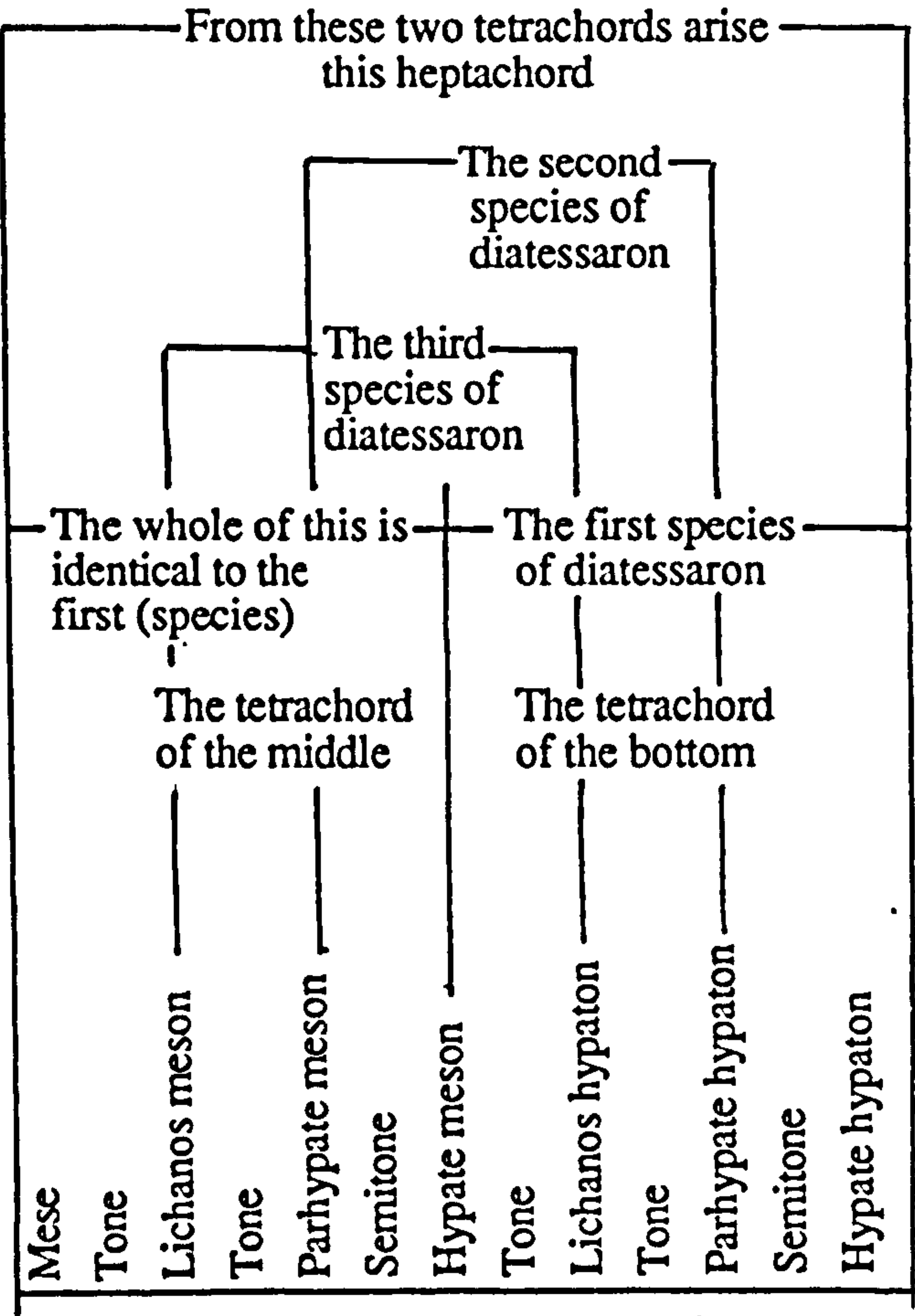
(Diagram on page 177)

⁴²The ordering of species follows Boethius's second ordering of species, that more consistent with traditional Greek theory: see *De inst. mus.* 4,14 (339,12-15), and Bower/Boethius p. 151, n. 76. The order "according to the Greeks" may be found, for example, in Cleonides *Eisagoge* 9 (JanS. p. 195-98), and Ptolemy *Harmonica* 2,3,50.

¹²Omne quidem tetrachordum est sola diatessaron, sed si duo coniunxeris, mox tres diversas efficis; quarta namque replicatur ut hic recte comprobatur, nec illud quod est simile diversum dicitur.



¹²Every tetrachord is made up of one species only of diatessaron, but if you join two tetrachords together, you quickly produce three species. The fourth is a repetition, as is rightly pointed out here, and what is identical is not referred to as different.



¹Capitulum octavum: ²Alia duo tetrachorda primis duobus simillima;
cur sint ab illis per unum tonum disiuncta.

³Hic natura rerum satis exercuit solertiam philosophorum: aut certe coacti sunt in duas partes tonum secare, vel humanas aures trium discordia tonorum sibi succedentium vehementer offendere. ⁴In illo enim quem supra depinximus heptachordo diapason haberi non potest, eo quod ibi sint septem tantummodo chordae sive voces, ipsa vero consonantiarum consonantia minus quam octo chordas habere non debet. ⁵Graeci namque proslambanomenos nunquam in divisione vocum annumeraverunt, quoniam divisus iam longo tempore chordis ab hypate hypaton, quae tunc erat prima sicut hic ponitur, ad complendum bisdiapason, et illa, prout in eius interpretatione tactum est, illi superadditur.

⁶Cum ergo proslambanomenos, quae prima nunc est omnium, ad eam quae prima prius erat tonum semper habeat, et ad eam chordam quae media dicitur, optimum diapason efficiat, quod et illa chorda quae mese sequitur, ab ipsa tono distet integro necesse est. ⁷Alioquin una de septem diapason speciebus tota perit, et si servaveris eam, trium tonorum, ut dixi, discordiam pessimam incurris. ⁸Cum tribus namque tonis contiguis humanae naturae concordia non est. ⁹Qua de causa, philosophi totis diebus altercari maluerunt cum tritono quam unam de septem diapason auferre de numero.

1. A 6r H 6v
2. simillia *pro* simillima A
4. diximus *pro* depinximus A
habere *pro* haberi H

¹Chapter VIII : ²Two other tetrachords, which had the same structure as the first two: why they were separated from them by the interval of a tone.

³At this stage, the facts of nature were enough to tax the ingenuity of the philosophers: there is no doubt that they were compelled either to divide the tone into two parts, or violently offend human ears with the dissonant interval produced by the succession of three tones.⁴³ ⁴For a diapason cannot be contained within the heptachord which we have described above, because the latter possesses only seven pitches or pitches. Also, the most perfect consonance needs to contain no fewer than eight pitches. ⁵The Greeks never included the proslambanomenos in their classification of sounds until, as is mentioned in Boethius' account, it was added on to the hypate hypaton to complete the bisdiapson.⁴⁴ For some time, the pitches themselves had been classified starting with the hypate hypaton—which at that time was the first pitch—which is how it is placed here, in the preceding diagram.

⁶Since therefore the proslambanomenos, which is by this time the first pitch, always lies at a tone's distance from the pitch which used to be the first, and since it produces a perfect diapason with that pitch which is called the mese, it is necessary that the pitch following the mese lies at a tone's distance from it. ⁷In the absence of the proslambanomenos, one of the seven diapason species is entirely destroyed; and if you retain it, you produce the dissonance of the interval produced, as have said, by three successive tones, the worst possible one. ⁸For human nature has no agreement with three whole tones adjacent to each other. ⁹For this reason, the philosophers preferred to argue with the tritone all the time rather than be deprived of one of the seven diapason species.

⁴³For Johannes' suppositions on the Greek view of the tritone, see below, *Pars prima* 1.9.14.

⁴⁴See *De inst. mus.* 1,20 (211,21ff). I assume here *eius* refers to Boethius's account.

¹⁰Hinc est quod sequentem paramese chordam ab ipsa mese per tonum integrum elongarunt, tertiumque tetrachordum a primis duobus seiunctum et cum quarto sequenti ligatum diezeugmenon, hoc est disiunctum, nominant, sicque durum a parhypate meson in paramese vilipendentes tritonum, optimam ab hypate hypaton in eandem paramese diapason conservant.

¹¹Tonus ergo soluit hic tetrachordum tertium a chorda mese tritonum generando, quod ligare poterat cum caeteris minus semitonium dulcisonam diapason enervando, pergens videlicet a paramese versus nete diezeugmenon, ut alia tetrachorda per semitonium minus, tonum et tonum. ¹²In qua nete chorda siquidem et quartum tetrachordum huic tertio connectitur, non aliter quam et illa duo prima simul in hypate meson connexa sunt, tenditque similiter ad nete hyperboleon chordam ultimam per minus semitonium, tonum ac tonum.

¹³Nullamque prorsus inter haec quatuor tetrachorda video distantiam, cum et ista duo tres diatessaron demonstrent species sicut et illa, nisi quod ibi tantummodo graves, hic autem acutae voces resonent.

¹⁴Quod totum esse verum hic depicta probabit figura.

(figura in pagina 182)

-
- 10. tertium namque A
est *supra lin A*
 - 12. huic *supra lin H*
in *om A*
 - 13. (prorsus) est *dele H om A*
video *om A*
 - 14. apparebit *pro* probabit A

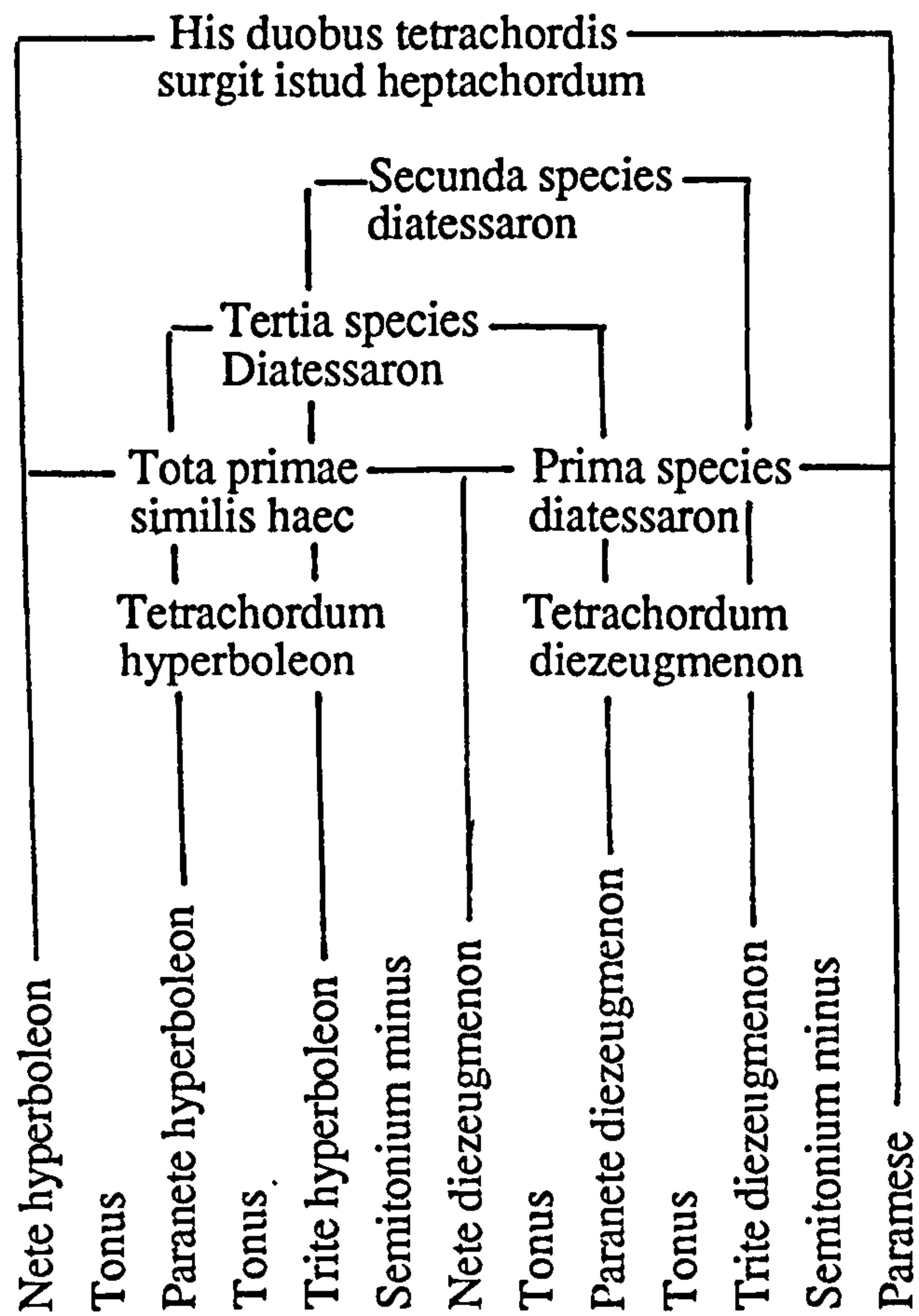
¹⁰It was for this reason that they separated the following pitch—the paramese—from the mese itself by the distance of a whole tone. To the third tetrachord they applied the term *diezeugmenon* which means 'disjunct', for it was separated from the first two tetrachords, and joined to the fourth which followed it. Thus, they preserved the perfect diapason extending from the hypate hypaton to the same paramese, paying little regard to the harsh tritone between the parhypate meson and the paramese.

¹¹The distance of a tone therefore separates here the third tetrachord from the mese, thus creating the interval of a tritone; were it to be joined by a minor semitone to the rest, this would result in the weakening of the sweet-sounding diapason. This tetrachord then extends from the paramese to the nete diezeugmenon - like the other tetrachords, in that it contains the progression minor semitone, tone, tone. ¹²At this nete, the fourth tetrachord is joined to the third, in the same way as the first two tetrachords are joined at the hypate meson; it extends to the nete hyperboleon—the last pitch—in a similar way, using the progression minor semitone, tone, tone. ¹³I myself see no difference at all between these four tetrachords, since both pairs produce the three species of diatessaron; however, there is the fact that one pair produces only deep pitches, and the other high.

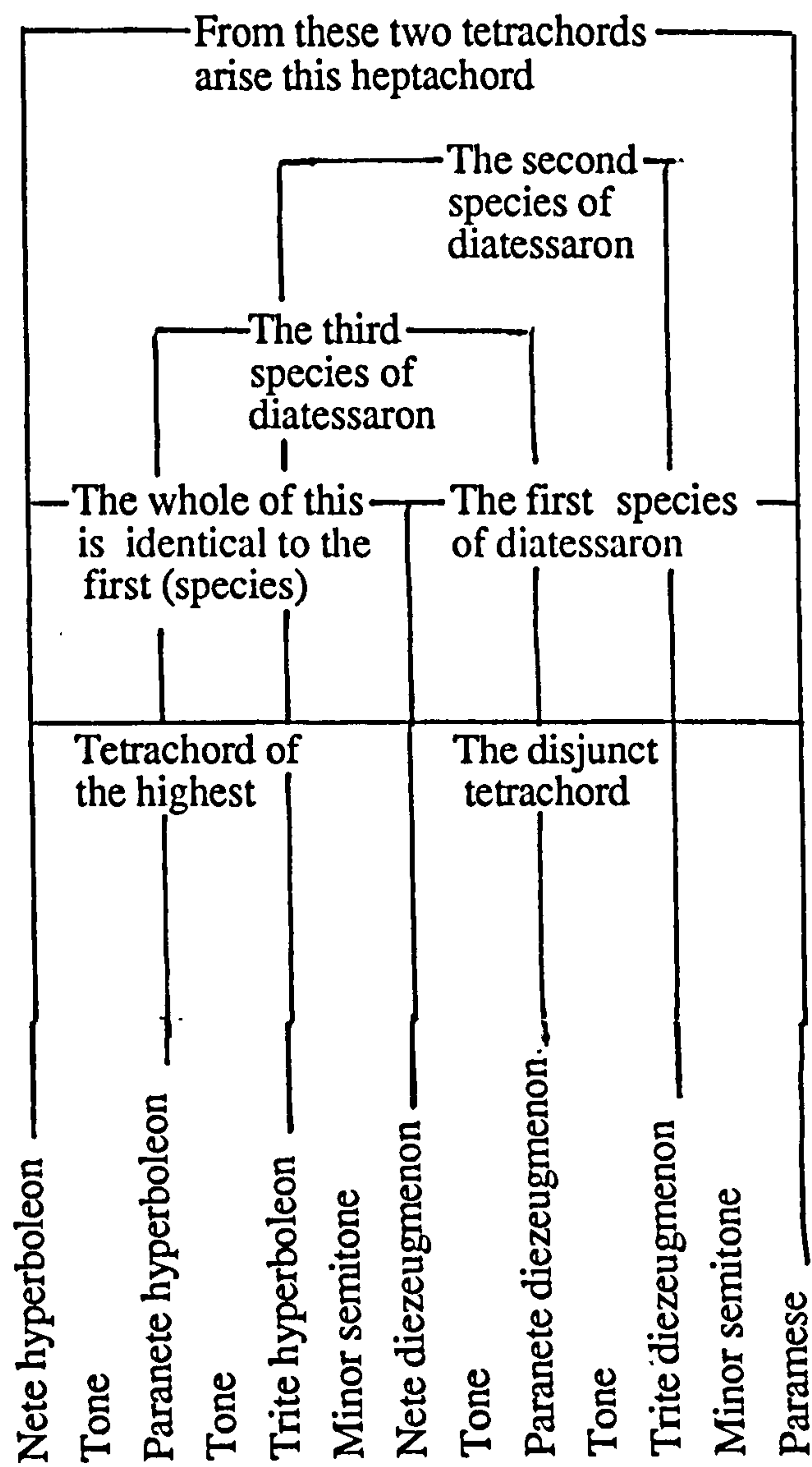
¹⁴The diagram which I have drawn here will prove all this to be true.

(Diagram on p. 183)

Haec duo ligata simul sunt caeteris simillima, nisi quod voces acutas occupant et illa graves; in quo quidem ostenditur quod quicquid voces resonant, totum quippe dirigitur triplici diatessaron.



15These two conjunct tetrachords are totally identical to the others, apart from the fact that these occupy a high register, and the others a low one. It is this fact which demonstrates that whatever the pitches sound, the whole is controlled by the three species of diatessaron.



¹Capitulum nonum: ²Cur quintum sit inventum tetrachordum et cum
chorda mese ligatum.

³Nunc autem ad id quod de tribus tonis contiguis supra motum est convertere
stilum nos oportet. ⁴Circa quod primo quaerendum est ad quid philosophi
Graeci quintum illis quatuor addere voluerunt tetrachordum, et cum satis
allegata mese chorda totaliter connectere, cum praesertim illa quatuor sufficiant
ad canendum tetrachorda, sic, ut vides, in optimo genere diatonico distincta,
tamque decenter per diapason ac diapason simul adunata. ⁵Videtur praeterea
superfluum ac inane totum istud tetrachordum, quoniam etsi nomina mutata sint
chordarum, est tonus identidem et tonus inter triten paraneten netenque
synemmenon, sicut inter triten paraneten ac neten diezeugmenon erat. ⁶Sed si
rem diligenter consideremus, non parvam inter has chordas differentiam esse
videmus. ⁷Providi namque philosophi, trium illorum tonorum discordia, quae
cadit a parhypate meson in paramesen, concitati, rursus et aliam inter mesen et
paramesen constituere chordam triten synemmenon, hoc est, tertiam
coniunctarum illam ea de causa qua et triten hyperboleon vocitantes. ⁸Quae
procul dubio tonum ab ipsa mese in paramesen secatur et dividit, sed non
aequaliter, dum ad mesen minus reddit semitonium, et ad parhypate meson per
consequens non iam tres tonos successivos, immo veram diatessaron generat.

-
- | | |
|----|---|
| 1. | A 6v H 7v |
| 2. | inventum sit A |
| 4. | quatuor <i>om</i> A |
| 5. | propterea <i>pro</i> praeterea A
ac ² <i>om</i> A |
| 7. | mesem et paramesem A |

¹Chapter IX: ²Why the fifth tetrachord was invented, and why it was joined to the mese.

³It is necessary now to devote some of my text to what we mentioned above concerning the three adjacent tones. ⁴With regard to this, we must first ask ourselves why the Greek philosophers wished to add a fifth tetrachord to the other four, and join it conjunctly to the mese, a pitch I have mentioned enough already, since these four tetrachords are more than adequate for singing purposes, set out thus, as you can see, in the excellent diatonic genus, and combined together so aptly between one diapason and another. ⁵Further, this tetrachord seems to be totally useless and superfluous, because even if the names of the pitches are changed, there is still a progression of two tones between the trite, the paranete and the nete synemmenon, likewise between the trite, the paranete and the nete diezeugmenon. ⁶But if we consider the matter carefully, we see a considerable difference between these pitches. ⁷The philosophers, provident as they were, were disturbed by the dissonance produced by the three tones which occurs between the parhypate meson and the paramese. They placed another extra pitch between the mese and the paramese—that is, the trite synemmenon—the 'third of the conjunct pitches'. They named it on the same basis as the term adopted for the trite hyperboleon. ⁸Clearly, this cuts and divides into two parts the whole tone which lies between the mese and the paramese—but not into equal halves. The pitch lies at a minor semitone's distance from the mese; consequently, the distance to the parhypate meson is not now three successive tones, but rather a true diatessaron is produced.

⁹A paramese vero distat apothome, quod est maius semitonium, idque totum non cernitur solum oculo, sed et manu de facili tangitur in monochordo.

¹⁰Quotiens ergo necesse est hoc uti quinto tetrachordo, relictis tetrachordi diezeugmenon chordis, totiens naturalem deserere paramesen, et hanc arte factam triten synemmenon recipere nos oportet; ¹¹tuncque tonum inter ipsam et paraneten synemmenon quae prius trite diezeugmenon erat proferre, rursusque tonum ab ipsa paranete synemmenon ad neten synemmenon quae chorda paranete diezeugmenon fuerat, ut ad tempus tetrachordo disiunctarum seposito quod naturale totum est atque facillimum, quintum istud difficile recipiatur quod currat etiam per minus semitonium ac tonum et tonum. ¹²Difficile dico quidem et non naturale quoniam, ut vides, arte quadam hic tonus, quod pauci capiunt, dividitur, minorique semitono cum chorda mese ligato, maius quod et apothome cum sequenti disiunctarum minori semitono iungitur. ¹³Hanc itaque Graeci maluerunt cum pessimo tritono iugem habere colluctationem quam unam, ut dixi, non posse describere diapason speciem, nec ab eis ob aliud tetrachordum istud synemmenon est cum chorda mese copulatum, nisi quo tanta trium tonorum duritia mutaretur in diatessaron perfectam.

¹⁴Quid amplius? Tolle, si potes, tritonum, et nil valet istud tetrachordum.

¹⁵Quo viso, melius est ipsum ab aliis naturalibus atque semper necessariis tetrachordis, ut hic depingendo seiungere, quam ab eo quod per se clarum est intricare.

-
10. naturalem *in marg* H
 paramesem A
 recipere..... paranete synemmenon *in marg* A
11. ad nete synemmenon *om* A
 chorda *scripsi* chordam HA
12. quod pauci capiunt *in marg* H
 et² *om* A
14. potesses A

⁹The pitch lies at a distance of an apothome from the paramese, that is, a major semitone. This can not only be wholly seen by the eye, but easily produced by fingering the monochord. ¹⁰Whenever we find it necessary to use this fifth tetrachord, then we have to abandon the pitches in the disjunct tetrachord, and by the same token, dispense with the natural paramese and replace it with the trite synemmenon, which is created by artifice. ¹¹Then it was necessary to produce the distance of a tone between this pitch and the paranete synemmenon—previously the trite diezeugmenon—likewise a tone between the latter and the nete synemmenon—previously the paranete diezeugmenon. Consequently, having set aside temporarily a totally natural and easy concept, that is, the disjunct tetrachord, the difficult fifth tetrachord was accepted, which was likewise made up of the progression semitone, tone, tone. ¹²I emphasize that this is a difficult and unnatural feature, for as you see, by means of certain skilful procedures, the whole tone is at this point dividend into two segments, a point which few appreciate; the minor semitone joins itself to the mese, and the major—that is the apothome—is joined to the minor semitone with the next of the disjunct pitches. ¹³And so the Greeks preferred to be involved in this continuous battle with the dreadful tritone rather than not be able, as I have said, to realize one of the diapason species. There was no other reason to join this other tetrachord, that is the synemmenon, with the mese than to change the considerable dissonance produced by three tones in succession into a perfect diatessaron.⁴⁵

¹⁴What more is there to say? Take away the tritone, if you can, and this fifth tetrachord has no validity. ¹⁵Now that I have clarified this point, it is better to separate this from the other natural, and totally necessary tetrachords, by describing it as I have done here, rather than, because of it, complicate a matter which, in itself, is quite self-evident.

⁴⁵Concerning this extended argument concerning the synemmenon tetrachord and the tritone, see Introduction, pp. 42-44.

16Istud quintum tetrachordum totum erit superfluum, si non discors ac nimius nobis occurrat tritonus quem delet diatessaron.

Prima species diatessaron	
Tetrachordum synemmenon id est, coniunctarum	
Nete synemmenon	Paranete synemmenon
Tonus	Tonus
	Trite synemmenon
	Semitonium minus
	Mese

¹⁶The fifth tetrachord will be totally superfluous, if the tritone does not strike us as discordant, and excessively so. This diatessaron does away with this tritone.

The first species of diatessaron	
Tetrachord 'synemmenon' that is, of the conjunct pitches	
Nete synemmenon	
Tone	
Paranete synemmenon	
Tone	
Trite synemmenon	
Minor semitone	
Mese	

¹Capitulum decimum: ²Ad sonitum malleorum Tubal-Cain; Jubal
concepisse totam in numeris musicam consistere.

³Quoniam de diviso tono mentionem fecimus ac de monochordo, putavi non
esse vanum parumper ad Jubal redire, quoque ritu subiectam invenit esse
numeris musicam breviter aperire, quatenus in hoc saltem me vidisse Boetii
musicam evidenter appareat ac eius arithmetica non nescisse, et priusquam
dispersa superius illa quinque simul aggregentur tetrachorda, viso quod nil a me
loquar aut novi quippiam de proprio cerebro cudam, lector lectioni fidem
adhibeat, et si forsan dubitaverit, ad fontem relicto rivo properet. ⁴Jubal igitur
ille dum iam multis diebus, uti credendum est, a natura cantasset, aliosque suos
coevos ad id ipsum provocasset, non ei suffecit sonos auditu tantum
discernere, quin potius coepit paulisper in dies meditando causas inquirere.

⁵Qui cum apud se talia crebro cogitaret, ac omnino cur sic soni permixti
consonent aut dissonent investigare vellet, audit una dierum super incude fratris
sui Tubal-Cain, qui faber erat, resonare tonum, diatessaron, diapente, simulque
diapason, et ait: "Mutate quaeso malleos ac iterum percutite, non enim parvum
aut in vestris brachiis aut in ipsis malleis latere sentio naturae secretum".

-
- | | |
|----|---|
| 1. | A 7r H 8v |
| 3. | evidenter <i>in marg</i> H
(quinque) tetrachorda <i>dele</i> H
(viso) quoque <i>add</i> A
letor A
forsan <i>in marg</i> H |
| 4. | coevos suos A
sufficit A
tantum auditu A
cepit A |
| 5. | aut <i>pro</i> audit A
simul cum <i>pro</i> simulque A |

¹Chapter X: ²Regarding the sound of the hammers of Tubal-Cain; Jubal discovers that music consists entirely of numbers.

³Since I have mentioned the division of the whole tone, and also the monochord, I thought it not a waste of time to return to the subject of Jubal for a while, and to show briefly how he discovered music to be subservient to number. To this extent at least it should be clear that I have consulted the *De Musica* of Boethius, and that I am familiar with his *De Arithmetica*.. Before the five tetrachords—treated separately above—are brought together as a single topic, let the reader—seeing that I say nothing on my own account, or forge any new idea in my own mind—accept on faith what he reads: and, if he entertains any doubts, let him return directly to the source and abandon the rivulet.⁴⁶

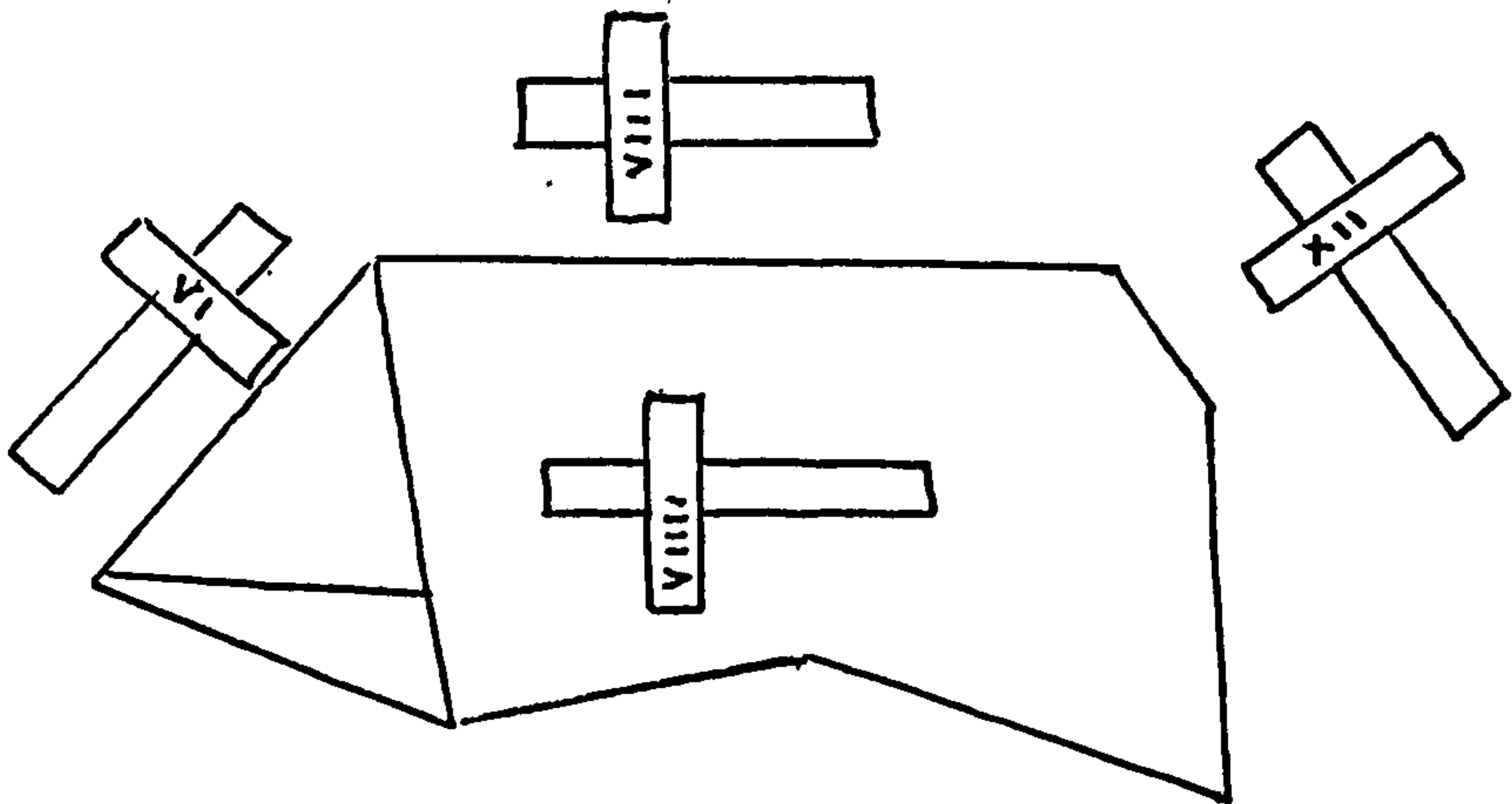
⁴Jubal⁴⁷ therefore, we must assume, had been singing naturally for many days, and encouraging his contemporaries to do the same. At this point, it was not enough for him to distinguish the pitches by ear alone; rather he began, as the days went by, to turn gradually to enquiring into the reasons for these phenomena. ⁵His thoughts turned to such matters frequently, and he was generally interested in investigating why combinations of sounds were either consonant or dissonant. One day, he heard the sound of the tone, the diatessaron, the diapente and the diapason at the same time upon the anvil of his brother Tubal-Cain, who was a blacksmith. He said to his brother: "Please change the hammers around, and strike again, for I feel that a wonderful secret lies either in your arms, or in the hammers themselves".

⁴⁶This passage concerning faith on the part of the reader may represent a literary topos modelled on similar passages in *De inst. mus.*, 1,19 (205,19ff) and 1 33 (222-23).

⁴⁷The narrative of this chapter rather closely follows *De inst. mus.* 1,10, but name of Jubal is substituted for that of Pythagoras—as noted by Johannes himself in sentence 10 below. The same Christian tradition of substituting Jubal or Tubal Cain for Pythagoras can be traced back to Egidius of Zamora (fl. ca. 1260-80), see GS2, p. 372a. Burtius (*Florum libellus*, p. 76) makes Pythagoras the hero of the legend.

⁶Dubitavit siquidem vir sensus habens ob longam aetatem exercitatos ne causa tantae novitatis quam aure captabat inesset ferientium viribus, sed nec sic aliud ibi concipiens quam quod ante senserat, malleos concitus ponderavit. ⁷Quo facto, singula singulis comparans pondera malleis, quosdam ab invicem duplo distareprehendit numero, quosdam autem epitrito sive sesquitertio, quosdam nec non sesquialtero, sed et quosdam simul sesquioctavam reddere vidit proportionem. ⁸Exempli gratia: si quis libras duodecim ad novem comparet, mox proportionem sesquiterciam habet, sed si novem ad octo sesquioctavam, et si rursus duodecim ad octo sesquialteram, quod si duodecim ad sex consideret, invenit duplam. ⁹Haec autem subiecta demonstrat figura quae solus musicus capere solet, nam qui se musicum reputat ignorans arithmetica, haud secus quam si se rhetorem praedicet nesciens grammaticam.

¹⁰Tradunt Graeci Pythagoram invenisse figuram, sed magis puto consonum opinari dictum Jubal suum fratrem Tubal-Cain frequentasse fabricantem, qui ferro pater extitit ac aere malleantium.



-
6. inesse A
 7. deprehendit *in marg* H
 8. (consideret) et *add.* A
 9. solis musicis A

⁶Jubal was a man whose senses were sharpened by the long passage of time, and he doubted that the reason for this new experience which was reaching his ears lay in the strength of the beaters themselves. However, though he did not imagine that there was any factor other than what he had previously observed, in a state of excitement, he weighed the hammers. ⁷Having done this, he compared the weight of each hammer, and discovered that some were twice the weight of others. Some produced the ratio 4:3, some the ratio 3:2, and others 9:8. ⁸For example, if one balances twelve pounds against nine, one easily arrives at the ratio 4:3. Again, nine pounds in relation to eight produces the ratio 9:8. Twelve pounds set in relation to eight produces the ratio 3:2, and twelve pounds in relation to six the ratio 2:1.* ⁹The following diagram explains these laws, which only the musician can grasp. For the person who considers himself to be a musician, while he at the same time is ignorant of arithmetic, can be compared to the person who claims to be an orator, but has no knowledge of grammar.

¹⁰It is traditional amongst the Greeks to claim that Pythagoras invented this diagram, but I think it is a more convincing idea to believe that the said Jubal visited his brother Tubal Cain the blacksmith, who was reputed to be the father of those who forge with iron and with bronze.

¹Capitulum undecimum: ²Quibus proportionibus numerorum Jubal adaptari voluit consonantias vocum atque sonorum.

³At Jubal, his cognitis, non nesciens voces acutas e pluribus ac velocioribus quam graves fieri motibus, omnemque pluralitatem ad paucitatem non aliter haberi quam si numerus comparetur ad numerum, in epitrito numero iudicat esse diatessaron consonantiam, eo quod illam inter duos eiusdem numeri malleos aure concepisset, motusque suos se sic invicem habere non ambigit tam graves quam acutos. ⁴Certus quoque per arithmetica ex epitrito numero et sesquioctavo gigni sesquialterum, in illo tonum, et in hoc diapente constituit, iuxta quod in malleis talium proportionum resonare praesenserat. ⁵Et quidem bene, scimus enim ex diatessaron et tono diapente fieri, et ex sesquitertia cum sesquioctava sesquialtera generari, propter quod necesse est ut tonus sesquioctavam et diapente sesquialteram occupet. ⁶Porro duplam inveniens proportionem ubi dulcis diapason resonabat in malleis, totam in duplo numero naturam eius esse censuit, cum praesertim diapente cum diatessaron aut e converso componere diapason aspiceret, quemadmodum epitritus numerus et sesquialter duplum generat, quod totum sequens figura monstrabit.

1. A 7v H 9r
 2. voluit adaptari A
 4. proportionem A
 praesenserat (praesenserat) *dele* H

¹Chapter XI: ²With which numerical ratios Jubal wished to relate the consonances produced by sounds and pitches.

³Having made these discoveries, Jubal became aware that high pitches are produced by more and faster vibrations than are deep pitches; also that every greater quantity has the same relation to a smaller quantity as one number has in relation to another.⁴⁸ He decided that a diatessaron was produced by the numerical ratio 4:3, because he had heard this interval produced by hammers of the same numerical ratios; he was sure that the low and the high vibrations had the same interrelation. ⁴He established too, using arithmetic, that the ratios 4:3 plus 9:8 produce the ratio 3:2. He established that the 9:8 ratio produced a whole tone, and the 3:2 ratio a diapente, according to what he had previously realised to be happening with hammers of the same relative sizes. ⁵And indeed he did well; for we know that a diapente is made from the combination of a diatessaron and a whole tone, and that the 3:2 ratio is produced from 9:8 plus 4:3. Consequently, it must be that the 9:8 ratio produces a whole tone, and that the 3:2 ratio produces the diapente. ⁶After this, he discovered the 2:1 ratio—that is when the sweet diapason sounded on the hammers—and he decided that its entire nature depended upon this duple ratio, especially since he saw that the combination of diatessaron and diapente—or vice versa—constitute a diapason, just as the 4:3 ratio added to the 3:2 ratio produces the 2:1 ratio. The following diagram will make clear all of this.

⁴⁸Cf. *De inst. mus.* 1,3 (190,21-30): ...acutae voces spissioribus et velocioribus motibus incitantur ... Ex pluribus enim motibus acumen quam gravitas constat. In quibus autem pluralitas differentiam facit, ea necesse est in quadam numerositate consistere. Omnis vero paucitas ad pluralitatem ita sese habet, ut numerus ad numerum comparatus.

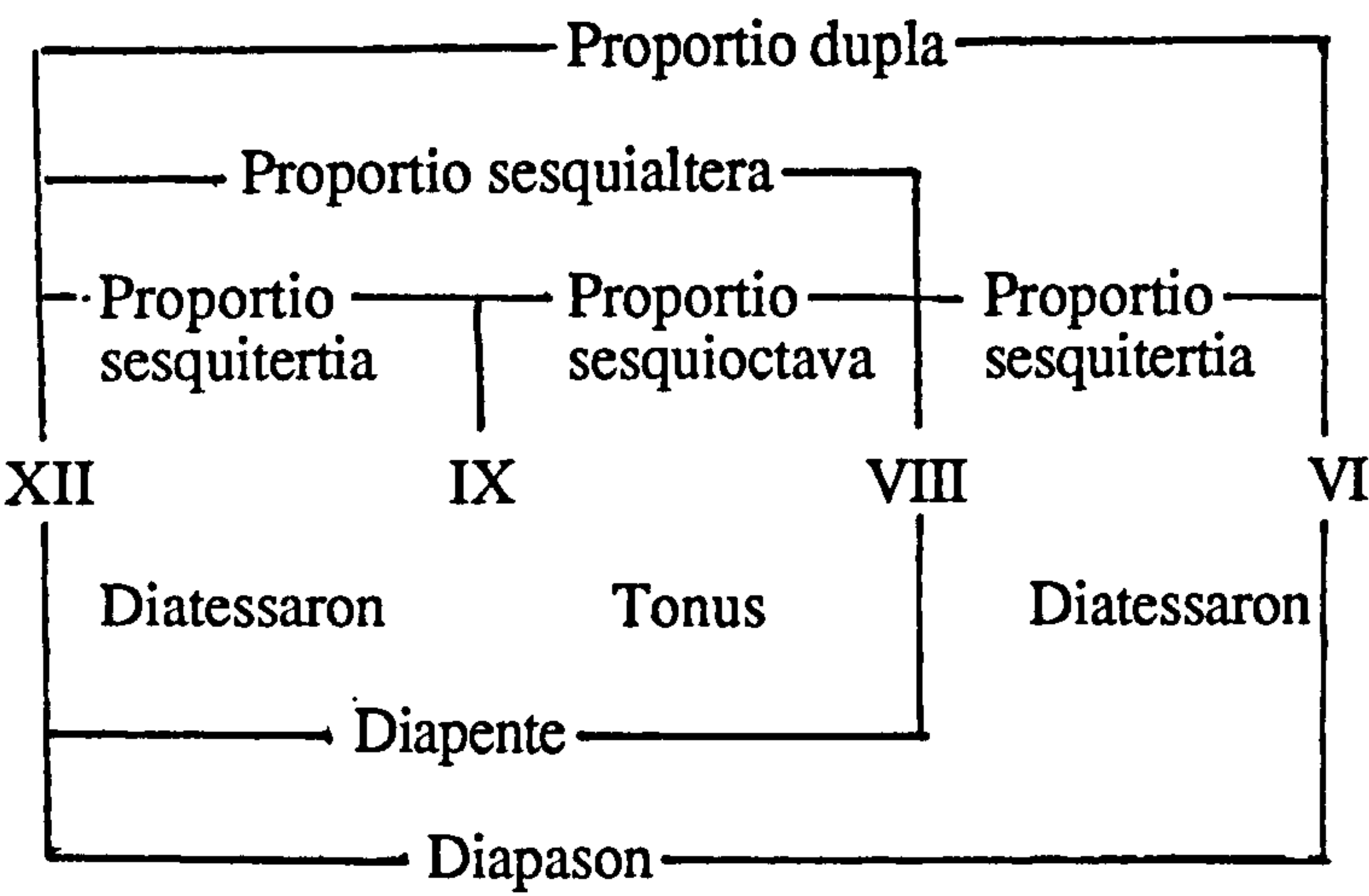
⁷Hic est tonus, haec diatessaron, haec diapente et haec diapason quae profecto veris suis partibus aequis ac integris totam monochordi metiuntur chordam, neque sunt aliae phthongorum vocum aut sonorum aggregationes quae tantam arrogare sibi praesumant omnino gloriam. ⁸De quo quippe monochordo post haec disputare cogito, monstrare volens oculo tonum ac diatessaron cum reliquis perfectis consonantiis nonnisi per praefatas proportiones in chorda posse creari vel resonare, videlicet per duplam, per sesquialteram, per sesquitertiam, ac per sesquioctavam proportionem, partes quoque toni principales esse maius atque minus semitonium palpare velle disponens, nec ullatenus in aequa tonum ipsum dividi. ⁹Nullum enim est aliud penes musicos ita verum approbans instrumentum, et hoc propter continuum ibi varie per praescriptas proportiones ac iustissime compartitum. ¹⁰*Omnia* siquidem, ut ait sapiens, *in mensura, numero et pondere consistunt*.

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7. aequis *in marg* H
8. haec *om* A
 praefactas A
 in chorda *in marg* H
9. (iustissime) *pa dele* H

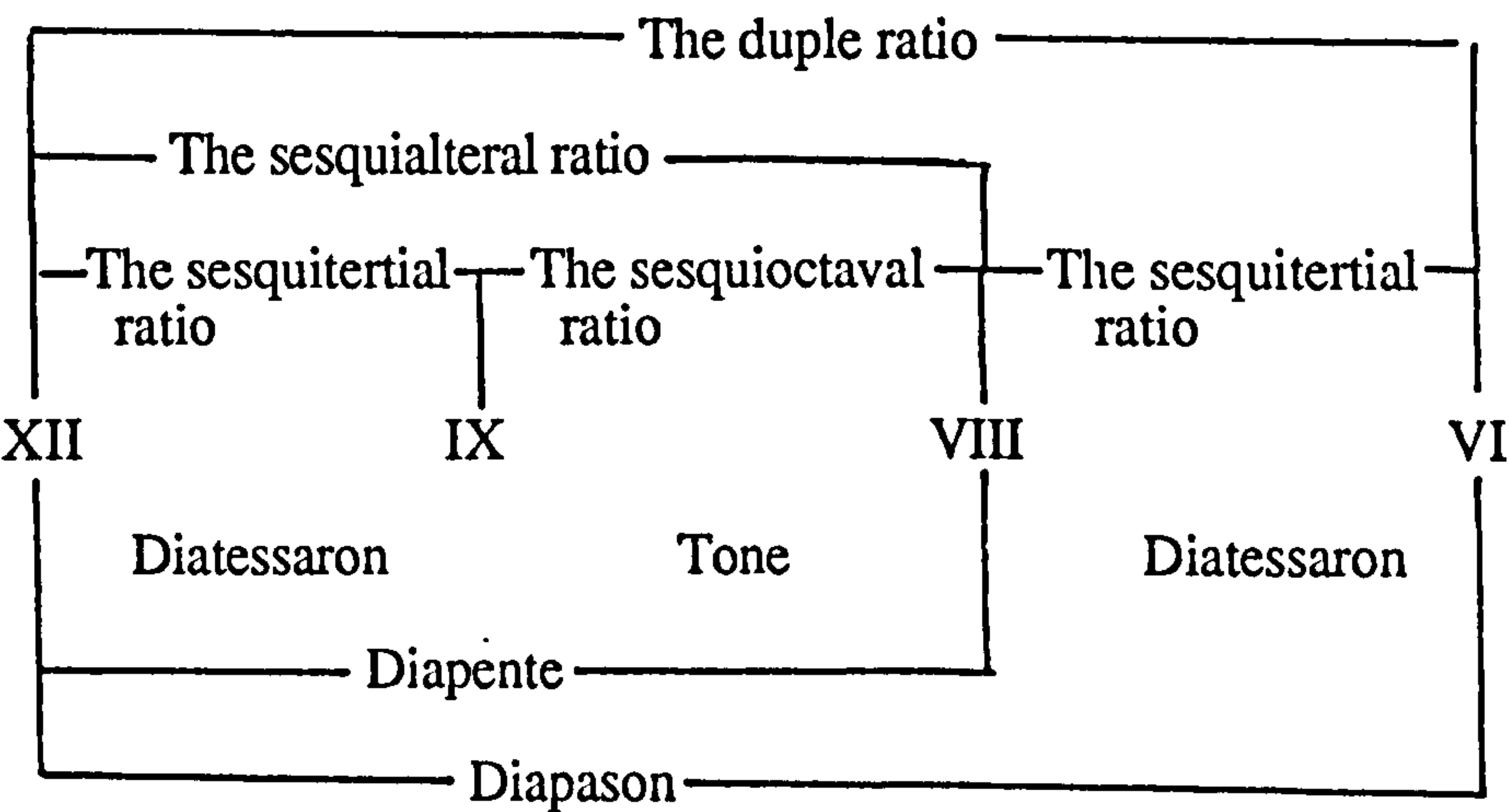
⁷This diagram shows the tone, the diatessaron, the diapente, and the diapason. All of these, with their true, equal and perfect parts, certainly measure out the total length of the string on the monochord. There are no other combinations of sounds, *phthongi* or pitches which can in fact presume to claim such status. ⁸I intend to examine after this the nature of the monochord, as I wish to demonstrate to the naked eye that the tone and the diatessaron, together with the other perfect consonances, cannot be produced and sounded on the string without using the numerical ratios mentioned above—2:1, 3:2, 4:3 and 9:8. I am disposed to wish to examine the fact that the principal parts of the tone are the major and minor semitones, and that in no way can the tone be divided into two equal parts. ⁹There is no other instrument which proves the truth in such a way as this one, as far as musicians are concerned: and this is because the unbroken whole is there divided variously and absolutely correctly according to the ratios mentioned above. ¹⁰All these principles—so the wise man tells us—are dependent on measurement, on number, and on weight.⁴⁹

⁴⁹Cf. *Sap.* 11, 21: sed omnia in mensura et numero et pondere disposuisti.*

¹¹Hic Jubal prior cecinit ac primus artem reperit, omne sumens iudicium, ut hic patet in numeris; quam demum in marmoribus sculpsit ac in lateribus ne pereat diluvio vel solvatur incendio.



¹¹This Jubal was the first to sing, and indeed the first to discover the art by undertaking every investigation, as is demonstrated here in the numerals. He eventually sculptured this in marble and in brick lest it perish in a flood or be destroyed by fire.



¹Capitulum duodecimum: ²Numeros eiusdem esse naturae voces et sonos.

³Nemini quidem grave videri debet, si numeros eiusdem esse naturae dicam et sonos, cum etsi lingua sileat aut scribere cesset calamus, non aliud ipsa natura clamet. ⁴Nam oro, quid est numerare nisi de decem unitatibus crescendo quasdam summas varias aut decrescendo congregare, totumque si sit opus, in primam unitatem et omnium matrem resolvere. ⁵Decem etenim varii tantummodo numeri sunt, et quicquid ultra numeretur non est novum, sed unum et idem totiens quotiens volueris replicatum. ⁶Quidve, quaeso, canere nisi de solis sex sonis tam varias quas supra vidisti vocum resonantias concreare, seu idem resumendo semper nunc voces intendere, nunc versus suam originem reflectere? ⁷Sex namque dumtaxat varii soni tres diatessaron species exprimunt, ut supra visum est, nihilque novum ultra canitur, sed replicatum est. ⁸Nullam ergo prorsus inter sonos ac numeros distantiam video, nisi quod vox sit continua dinumeratio, cantus autem vox cum intervallo suspensa. ⁹Quid plura? Motus est ab unitate numerus in unitatem, et motus est a sono in sono cantus identidem. ¹⁰Quemadmodum enim ab unitate movetur in aliam unitatem binarius, sic et tonus ab uno sono transit in alium ac semitonium minus.

1. A 8r H 10r
 3. clamat A
 5. voces nunc A
 7. ultra *in marg* H

¹Chapter XII: ²That pitches and sounds have the same natural ratios as numbers.

³No-one should be seriously concerned because of my claim that numbers and pitches share natural properties: even if my tongue were silenced and my pen ceased to write, nature herself would make the same claim. ⁴For, pray, what is counting, if not the production of different amounts by addition or subtraction—out of the ten basic units—and, if one's efforts are to be complete, to resolve them back to the initial unity, the mother of all?⁵⁰ ⁵There are only ten different numbers, and any reckoning beyond these is not new, but one and the same thing repeated as often as you wish. ⁶What is singing, I ask, other than to create all the different vocal sounds which you saw above, out of just six sounds, or, using them over and over again, raising the pitch of the voice, and at other times reverting to the original pitch? ⁷For there are but six distinguishable sounds which produce the three types of diatessaron, as I previously made clear: nothing new is ever sung beyond these, but is a mere repetition. ⁸I am aware of no great difference between sound and number, unless perhaps we can say that spoken sound possesses the quality of continuous delivery, and that a melodic line is made up of such a sound divided up by intervals.⁵¹ ⁹What need of more? Number moves from one whole to another, and melody likewise moves from one sound to another. ¹⁰In the same way as a two-fold number progresses from one unit to another, likewise there exists a tone or minor semitone between one sound and another.

⁵⁰Cf. *De inst. arith.* 1,14 (30, 26-28): Dicitur autem primus et compositus, quod nullus eum alter numerus metiatur praeter solam, quae cunctis mater est, unitatem.

⁵¹See above, n. 34.

¹¹Et sicut ex tribus motibus unitatis in unitatem surgit ternarius, et ex quatuor quaternarius, sicque de reliquis, ita quidem ex tribus sonorum motibus constat ditonus ac semiditonus, et ex quatuor oritur diatessaron et tritonus caeterique musici motus iuxta suam uniuscuiusque propriam qualitatem et quantitatem.

¹²Concrescunt numeri, conscendunt et soni. ¹³Decrescunt numeri, descendunt et soni. ¹⁴Infiniti sunt numeri, infiniti sunt et soni. ¹⁵Prodeunt ab unitate numeri, prodeunt ab unisono soni. ¹⁶Reducuntur ad unitatem omnes numeri, resolvuntur in unisonum omnes soni. ¹⁷Numerat homo quantum habet ad numerandum; canit homo quantum ab imo scandit in altum. ¹⁸Ergo cantor non dicas "quid habent numeri cum cantibus?," quoniam adeo soni subiecti probantur esse numeris ut nullum omnino verum de motibus musicis proferri valeat iudicium, si non fuerit per descriptas ibi proportiones tam in multiplici quam superparticulari diligenter discussum. ¹⁹Nam ut vides in ipsa figura, quatuor motus musicos integros simplices ac primos quatuor illis proportionibus subscriptos, ac sicut sesquitertia cum sesquioctava producit sesquialteram, et ipsa sesquialtera cum sesquitertia, vel e converso duplam proportionem, ita diatessaron cum tono diapente perfectum, ac idem diapente cum diatessaron aut e converso diapason perfectam, non aliter progredi potes eosdem componendo motus usque in infinitum. ²⁰Si namque duplam cum sesquialtera componas, ut hic: II–III–VI, triplam componis, in qua diapason diapente perfecta resonet, sed non simplex consonantia.

11. (numeri) a *dele* H
 conscendunt A
 uniuscuiusque *scripsi* unusquisque HA

18. soni *om* A
 iuditium A

19. (aut) e (converso) *om* A

¹¹The number three arises out of three progressions from unity to unity; the number four from four progressions. Thus it is with the rest of the numbers. Likewise, the ditone and the semiditone are established by the progression of three pitches. From the four-fold progression arise the diatessaron and the tritone. Other musical progressions come into being, each according to its own characteristics and its range. ¹²Numbers become greater, sounds become higher. ¹³Numbers decrease, sounds become lower. ¹⁴Numbers are infinite, sounds are also infinite. ¹⁵Numbers are born of the single unity, sounds are born of the one initial sound. ¹⁶All numbers finally resolve back to this initial unity, all sounds back to the one sound. ¹⁷The range of man's counting depends on how much he needs to count; man's singing range depends upon how high he reaches, starting with the lowest pitch. ¹⁸Therefore, dear singer, you are not to say "What do numbers have in common with melodies?", since sounds are proved to be so subservient to numbers that no value judgement can be brought to bear on musical progressions unless there has been a careful analysis according to the numerical ratios I have described above—both of the multiple and superparticular species. ¹⁹For as you see in the diagram, the four prime, simple, complete musical progressions are written under the four ratios. The 4:3 ratio added to the 9:8 ratio produces the 3:2 ratio. The latter, added to the 4:3 ratio—or vice-versa—produces the 2:1 ratio.⁵² Likewise the diatessaron with a whole tone added to it produces a perfect diapente, and the same diapente with the diatessaron - or vice versa - produces a perfect diapason. In just the same way, you can progress by compounding the same movements to infinity. ²⁰If you couple the 2:1 ratio with the 3:2 ratio in this manner, 2:4:6, you then produce the ratio 3:1 as a result of which a perfect diapason and diapente is sounded. This is not however a simple consonance.

⁵²Concerning addition of consonances to create others, cf. *De inst. mus.* 2,26 (258, 19-27).

²¹Si vero triplam et sesquiterciam copules, non dubium quin extremi numeri surgant in quadruplam ut hic: I–III–III proportionem, quae sicuti dupla simplicem diapason, ita compositam bisdiapason consonantiam generat.

²²Quid ultra dicam? ²³Nulla fit utique de sonis ac vocibus concordia sive discordia canendo quae non cadat etiam in his proportionibus simul aggregatis numerando.

²⁴Quod ut lector facilius capere valeat ubicumque tractandum est de numeris, hoc expleto primo libro, secundum a quinque generibus inaequalitatis inchoare disponimus, ubi tota natura numerorum ac inaequalium proportionum habetur.

²⁵EXPLICIT LIBER PRIMUS.

21. ut hic 1 111 1111 *in marg* H (ut hic) apparet *add et dele* A
 quae *om* A
 24. letor A
 in aequalitatis A
 proportionem *pro* proportionum A

²¹If you couple together the 3:1 and 4:3 ratios, clearly the outside numbers produce the 4:1 ratio in this manner, 1:3:4. This produces the compound consonance in the same way as the 2:1 ratio produces the simple diapason.

²²What more need I say? ²³Assuredly, no consonance or dissonance exists in singing which does not also fall within these ratios compounded by the arithmetical process.

²⁴So that the reader may grasp with greater ease the subject matter whenever we must deal with number, now that the first book is complete, I am disposed to begin the second with the five types of inequality, when I will consider the whole nature of numbers and unequal ratios.

²⁵HERE ENDS THE FIRST BOOK.

¹INCIPIT LIBER SECUNDUS:

²Capitulum primum: ³Genus multiplex continere diapason et quicquid ab illo sit compositum.

⁴Hoc expleto primo libro, volens implere promissum ac in monochordo quae supra dicta sunt approbare, prius optimum aestimo de quinque generibus inaequalitatis aliqua tangere, sine quibus nemo naturam novit numerorum aut inaequalitates proportionum. ⁵Sunt namque genera quinque totius inaequalitatis: multiplex, superparticulare, superpartiens, multiplex superparticulare, et multiplex superpartiens. ⁶Multiplex autem ab eo quod est multiplicare dicitur, eo quod numeros ab unitate variis modis tam per binarium quam per ternarium aut quaternarium, sicque de reliquis multiplicat; auget inquam ac deducit ad aequalitatem cum maioribus usque in infinitum. ⁷Hoc genus primum est omnium ac vetustissimum, suas adeo servans quascumque partes integras ut nihil sibi desit unquam nihilque superabundet. ⁸Est igitur multiplex quando maior numerus in se totum continet minorem bis ter aut quater et sic de singulis, ut si binarius unitati comparetur, sit proportio dupla, si vero ternarius tripla, si quaternarius quadrupla, si quinarius quincupla, sicque de caeteris prout in hac descriptione denaria patebit, in qua quidem et sescuplam, septuplam, octuplam, noncuplam ac decuplam habes proportionem, si tamen singulos numeros unitati primae compares, a qua videlicet genus tam nobile ducit originem et non aliud.

1. A 8v H 11r
LIBER *om* A
6. in *om* A
8. sic *pro* sit A
quatrupla A

¹THE SECOND BOOK

²Chapter I: ³The multiple type contains the diapason, and other intervals compounded from it.

⁴This first book is now complete. I now wish to fulfil my promise and prove on the monochord the statements I have previously made. I think it best first of all to discuss certain points about the five types of inequality: without a knowledge of these, no-one can be conversant with the nature of number and with the inequalities of ratios. ⁵There are five types of inequality as a whole: multiple, superparticular, superpartient, multiple superparticular and multiple superpartient.¹ ⁶The term 'multiplex' is derived from 'multiplicare'—it multiplies numbers, starting with the initial unity, in many various ways, twice, three and four times and so on. It multiplies and divides back to equality, using numbers greater than one, ad infinitum. ⁷This type is the first and oldest of all the types; it keeps intact each and every part of itself, so that no fraction of it is ever missing, or is left over.² ⁸Therefore, a multiple number exists when a larger number contains within itself a smaller whole number twice, three times or four, and so on,³ so that if the number two is compared to one, then the 2:1 ratio is produced; likewise the figure three produces the 3:1 ratio, and four the 4:1 ratio, and five the 5:1. The same principle applies to the rest of the numbers as will be made clear in this account of the ten numbers, in which one also finds the ratios 6:1, 7:1, 8:1, 9:1, 10:1, provided that one relates any of these numbers to the initial unity. It is from this that such a noble genus, excluding all others, takes its origin.

¹The obvious source of Johannes' introduction to genera of inequality is *De inst. mus.* 1,4 (191-192).

²Cf *Lucidarium* 7.1.3-4.

³ *De inst. mus.* 1,4 (191,11-13): Est vero multiplex, ubi maior numerus minorem numerum habet in se totum vel bis vel ter vel quater ac diinceps. Cf *Lucidarium* 7.1.7-9.

⁹Radices ac omnium primae multiplicium proportiones:

I II III IIII V VI VII VIII IX X

¹⁰Quod si relictæ prima unitate volueris hos numeros binario comparare, non discedis etiam a multiplici, non numerans ternarium, quinarium, septenarium, atque de medio relinquens nonarium, sed habes iterum duplam, triplam, quadruplam, et ad denarium quintuplam. ¹¹Rursusque si quoscumque volueris in se multiplices numeros, aut in alios magnos sive parvos, nunquam hoc genus deseris integerrimum, nam si dicas ter duo, triplam facis, et si bis tria duplam, et si quater quatuor quadruplam, et sic deinceps, comparatisque simul tot partibus nil interruptum, nil minus habens aut inaequale vides. ¹²Sic sit genus istud excellentissimum, sic est inquam ab eo qui cuncta creavit tam pulchriter dispositum, ut ab indivisa quidem unitate totum procedat, nec unquam eius integritatem cursu naturali progrediens relinquat. ¹³Hinc est quod diapason cum suis compositis, quæ sunt diapason diapente, bisdiapason ac huiuscemodi perfectissimæ consonantiæ tam suaviter consonant, quoniam a natura huius æqualissimi multiplicis generis non recedunt.

9. primæ *om* A
11. quoslibet *pro* quoscumque A. (quoscumque) unitatem quam
quoslibet *dele* H
nonquam A
ter *pro* quater A
12. est *supra lin* H
unite *pro* unitate A
13. consonantiæ perfectissimæ A

⁹The roots and primary ratios of all the multiple numbers:

I II III IIII V VI VII VIII IX X

¹⁰Now if you wish to leave out the figure one, and relate these numbers to the figure two—discounting figures three, five, seven and nine—you still do not depart from the principle of the multiple number. You still have the duple, triple and quadruple ratios, and also the 5:1 ratio when you get to the figure ten.

¹¹Again, if you wish to multiply any one of these numbers with itself, or with a greater or lesser number, you will never abandon the whole number upon which this genus is based: for if you multiply two by three, you produce the 3:1 ratio; multiply three by two and you have the 2:1 ratio. Multiply four by four and the result is the 4:1 ratio. Thus it continues, and although so many single units be placed next to each other, you will see that there is no unit which loses its wholeness, is too small, or lacks equality. ¹²This genus then must excel above all; I say that it has been ordered so beautifully by Him who created all things that it proceeds wholly from the undivided unity, and in its progress along its natural path, it never abandons its natural wholeness. ¹³It is because of this that the diapason, with its compounds the diapason diapente and the bisdiapason, together with the other perfect consonances of this type, produce such a pleasing sound. They never depart from the natural properties of this most equal multiple genus.

14Nam sicut hi numeri tantam invicem pacem habent ut, simul comparati, minor maiorem aequaliter impleat, et maior in se minorem absque superfluo recipiat, ita quidem in his consonantiis et gravis cum acuto convenit, et acutus cum gravi sono. 15Quod totum evidens est, manuque palpari potest in monochordo.

14 minor *om* A
in se *supra lin* H
15. (est) in monochordo *dele* A
possit pro potest A

¹⁴These numbers enjoy so great a mutual harmony, that, as soon as they are brought together, the smaller number fills out the greater without remainder; the greater contains the smaller with no remainder. In the same way, as far as these consonances are concerned, the deeper pitch is in harmony with the higher, and the higher with the low. ¹⁵All of this is evident, and can be played by hand on the monochord.

¹Capitulum secundum: ²Genus superparticulare non ut est multiplex
integrum, ac per hoc non reddere tam suaves diapente consonantias et
diatessaron.

³Superparticulare genus ob hoc sic appellatum est, quod semper unam desuper
particulam habeat; non enim ut multiplex partes suas servare valet integras,
neque velut superpartiens et alia genera multum in diversa distrahit. ⁴Hoc
genus secundum est, sed ex primo secundoque multiplici procreatum, inchoans
a binario sicut ab unitate multiplex, ac deinceps gradatim a maioribus minores
numeros una parte sui differre cogens. ⁵Et siquidem media parte sesquialtera
proportio dicitur a *sesqui*, quod est *totum*, et *altera* sive *media*, si vero tertia
parte, sesquitertia est, et si quarta, sesquiquarta, et si quinta, sesquiquinta,
sicque de infinitis. ⁶Est ergo superparticulare genus quando maior numerus in
se totum habet minorem, ac insuper alteram eiusdem minoris, seu mediam
partem, ut est ternarius binario comparatus, aut vere tertiam, ut si quatuor ad tria
compares, aut quartam si quinque ad quatuor, aut si sex ad quinque quintam,
prout in hac descriptione patebit.

1. A 9r H 11v
2. consonantias *scripsi* consonantiam HA
3. unam semper A
4. (gradatim) a *supra lin* H
 (numeros) coaequans *dele* H
5. finitis A
6. comparans *pro* compares A

¹Chapter II: ²The superparticular genus is not integral, as is the multiple genus; because of this, it produces consonances which are not so pleasing—the diapente and the diatessaron.

³The superparticular genus is so called because it always has one fraction left over. It cannot, like the multiple genus, keep its constituent parts intact, neither does it, like the superpartient and other genera, divide the whole into different parts. ⁴This then is the second genus, born of the first and second multiples. It begins at the figure two, as the multiple genus begins at one. Thereafter, at its different stages, it makes the smaller numbers differ from the larger by one fraction of themselves. ⁵If indeed it differs by a half, it is called the 'sesquialtera' ratio, from *sesqui* which means 'whole number' and *altera* which means 'half'; but if by a third, it is called the 'sesquitertial' ratio; if by a fourth, the 'sesquiquartal', if by a fifth, the 'sesquiquintal', and so on into infinity. ⁶Therefore, a superparticular number exists when a greater number contains within itself a whole smaller number, and in addition a part of that smaller number, a half as three compared to two.⁴ In the case of four compared to three, the fraction is one third, five compared to four needs a quarter, and a fifth in the case of six compared to five. All of this will become clear in this account.

⁴Cf. *De inst. mus.* 1,4 (191,17-19): ...cum maior numerus minorem numerum habet in se totum et unam eius aliquam partem eamque vel dimidiam, ut tres duorum ...

⁷Si tamen, ordinate progrediens, maiorem quemcumque numerum consideres qualiter se scilicet ad minorem sibi proximum habeat, nullumque prorsus indiscussum de medio pertranseas. ⁸Ibi siquidem non solum sesquialteram habes aut sesquitertiam sive sesquiquartam et sesquiquintam quas supra descripsi proportionones superparticulares, sed et sesquisextam, sesquiseptimam, sesquioctavam et sesquinonam, omnes in denario numero radices, et primas omnium quantumlibet magnarum superparticularium proportionones, non aliter quam superius videre potes de multiplicibus.

⁹Radices ac omnium primae superparticularium proportionones:

II III IIII V VI VII VIII IX X

¹⁰Vides hic genus istud, si bene perpendis, quamquam ab unitatis integritate non inchoet, a natura tamen multiplicis quod ab illa nascitur non nimis alienum. ¹¹Multiplex enim ab unitate prodiens, ac naturalem numerorum dispositionem prosequens, nunquam ortus sui deserit integritatem; superparticulare vero gradatim etiam et ordinate procedens una tantum particula semper integrum minuit. ¹²Servat quoque multiplex identitatem multiplicatis in infinitum suis partibus, servat et id ipsum superparticulare, nec suam similiter immutat naturam. ¹³Si namque duplam duplices triplices quadruplices aut quantumcumque volueris multiplices, nunquam aliud quam duplam habes, sicque de singulis multiplicibus, et si sesquialteram per binarium aut ternarium ducas aut per quoslibet alios numeros magnos sive parvos, nil aliud quam sesquialteram invenis, nec aliter fieri potest de caeteris omnibus superparticularibus.

7. numerum *in marg* H
(prorsus) numerum *dele* H
de medio *in marg* H
pertransias A
11. numerum *pro* numerorum A
etiam *in marg* H
13. (habes) et *dele* H

⁷If you work through in an orderly fashion, and consider each number and its relationship with its nearest smaller number, certainly you will not leave anything unconsidered. ⁸You have available 3:2, 4:3, 5:4 and 6:5—which I have described above as superparticular ratios. You also have 7:6, 8:7, 9:8 and 10:9—all the primary numbers within the range of ten. You can see here the basic ratios of all the superparticular numbers however large, in the same way as above as regards the multiple numbers.

⋮

⁹The roots and primary ratios of all the superparticular numbers:

II III IIII V VI VII VIII IX X

¹⁰You see here that this genus, although it does not arise from the initial unity 'one', is not all that different from the nature of the multiple genus which does arise from it. ¹¹For the multiple genus proceeds from the whole number, and follows the natural order of the numbers; it never abandons the wholeness of its origins. The superparticular genus, also proceeding step by ordered step, always lessens the whole number merely by one particle. ¹²The multiple genus also preserves its own identity even when its parts are multiplied to infinity. The superparticular genus also preserves the principle, and similarly does not change its nature. ¹³For if you multiply the 2:1 ratio by two, three, four, or indeed by as many times as you like, the same 2:1 ratio still remains. The same is true of the other individual multiple numbers. Further, if you multiply 2:3 by two, three, or by any other number, great or small, nothing but the 2:3 ratio will remain. The same must hold true for all the other superparticular numbers.

¹⁴Denique, quod maius est, ex duabus primis multiplicibus dupla et tripla gignitur, ut ante monstratum est, superparticulare genus, et ex duabus primis superparticularibus, sesquialtera et sesquitertia, proportio dupla resultat, quae prima est de multiplicibus.

¹⁵Nunc autem viso quod Deus tantam inter haec duo genera posuit affinitatem, quodque multiplicis aequalitatis et integritatis diapason consonare cogit tam suaviter, quis dubitare debeat diapente sesquialteram et diatessaron sesquitertiam occupare proportionem? ¹⁶Certe quemadmodum ex sesquialtera proportione et sesquitertia surgere duplam ostensum est, ita diapason ex diapente constat et diatessaron. ¹⁷Nec est alia causa cur non ita dulciter hae duae concordent consonantiae, nisi quod ab aequalitate diapason tanto remotae sunt quanto sesquialtera et sesquitertia proportiones superparticulares ab integra dupla distractae. ¹⁸Nam sicuti geminata sesquialtera transcendit duplam, et duplicata sesquitertia non attingit ad illam, ita quidem duo diapente simul diapason superant, et duae diatessaron illud aequare non valent. ¹⁹Et haec de duobus istis optimis in aequalitatis generibus sufficiant, in quibus solis omnes perfectae musicales consonantiae cadunt ut chorda probabit dimensa, nam ad alia tria quae sequuntur procedendum est, in quibus e contrario cadit omnis dissonantia.

14. aut *pro* ut A
 17. (consonantiae) concordent *dele* H
 quod *om* A
 19. solis *om* A
 ad *om* A

¹⁴Finally—a more important point—the superparticular genus takes its origin from the two prime multiples two times and three times, as we have pointed out previously. Out of the combination of the two prime superparticular ratios, 2:3 and 3:4, the 2:1 ratio arises, which is the first of the multiples.

¹⁵Now since we have shown that God established such a strong bond between these two genera, and because He causes the diapason, which has the equality and wholeness of the multiple genus, to produce so sweet and harmonious a sound, who should doubt that the diapente relates to the 3:2 ratio, and the diatessaron to the 4:3? ¹⁶It has been demonstrated clearly how the duple ratio is the result of the combination of the 3:2 and 4:3 ratios; likewise, the diapason is made up of the diapente and the diatessaron. ¹⁷There is no other reason why these two consonances should not relate to each other so beautifully, except for the fact that they are as far removed from the equality of the diapason as the 3:2 and 4:3 ratios are withdrawn from the integral 2:1 ratio. ¹⁸For in the same way as two 3:2 ratios together are greater than the duple ratio, and two 4:3 ratios are not on a par with it, so two diapente together are greater than the diapason, and two diatessaron are not able to equal it. ¹⁹May what I have said suffice concerning these most excellent genera of equality; it is to these alone that all perfect musical consonances relate, as the string with its measurements will prove. I must now proceed to discuss the other three genera which follow. It is within these, on the other hand, that all dissonances are contained.

¹Capitulum tertium: ²Genus superpartiens nullam in sonis pro nimia partium abundantia reddere consonantiam.

³Genus superpartiens, ab eo quod superpartiri dicitur sumpsit vocabulum, nihil enim integrum nihilve servans indivisum, duas etiam tres aut quatuor desuper habens partes, a simplicitate quodammodo recedit ac in quandam se partium pluralitatem diffundit. ⁴Hoc genus tertium est ab aequalitate multiplicium ac integritate plusquam superparticulare genus remotum, ac idcirco minus ad musica modulamina coaptum; nam etsi superparticularis inaequalitas nihil servet integrum, non se tamen sicut istud in tam diversa distrahit.

⁵Est itaque genus superpartiens quando maior numerus in se totum minorem habet, ac insuper aliquantas eius partes, et si duas habuerit, superbipartiens est, ut quinque comparati tribus, si vero tres, supertripartiens, ut sunt septem ad quatuor, et sic de caeteris. ⁶Ritus autem procreandi non dico tantum duas aut tres, immo plures ac infinitas istius modi superpartientes inaequalitates hic est. ⁷Primum genus quod est multiplex ab integra quidem unitate procedens, ac in totum discretæ quantitatis naturam habens, naturalem, ut supra monstratum est, nullatenus interrumpit crescendo sui generis successionem.

-
- 1. A 10r H 12v
 - 3. etiam *supra lin* H
quodammodo *scripsi* quonammodo HA
 - 4. in tam *om* A
divisa *pro* diversa A
 - 7. tonum *pro* totum A
interupit A

¹Chapter III: ²The superpartient genus does not produce any consonance between sounds because it possesses too many aliquot parts.

³The superpartient genus derives its name from the fact that it is said to possess superpartient characteristics. It keeps no integral or indivisible element, and always has a remainder of two, three or four aliquot parts. In a way it is divorced from simplicity, and divides itself, so to say, into several parts. ⁴This third type is even more removed from the equality and wholeness of the multiple numbers than the superparticular genus; for this reason, it is less relevant to the needs of musical melody.⁵ For even though the unequal nature of a superparticular number cannot contain integral characteristics, nevertheless, it does not divide itself up into as many parts as the genus we are now discussing.

⁵Thus the superpartient genus exists when the greater number contains a whole smaller number totally within itself, and additionally more than one aliquot part. If two parts remain, it is called superbipartient—for example, 3:5; if three parts remain, the term supertripartient is used—for example 4:7, and so on.⁶ ⁶This is the method of producing not only, should I say, two or three superpartient unequal numbers, but infinitely more numbers of this particular type. ⁷The first genus—that is, the multiple genus—proceeds from the first integer; it totally retains the characteristics of discrete quantity;⁷ as has been demonstrated above, in no way does it destroy the natural progression characteristic of its type even when it becomes larger.

⁵Cf. *De inst. mus.* 1,4 (194,6-15): Rursus multiplicitas omnis in integritate se continet. ... Superparticularitas vero nihil integrum servat, sed vel dimidio superat, vel tertia ..., sed tamen divisionem singulis ac simplicibus partibus operatur. Superpartiens autem inaequalitas nec servat integrum nec singulas admit partes, atque idcirco secundum Pythagoricos minime musicis consonantiis adhibetur.

⁶Cf. *De inst. mus.* 1,4 (191,23-29): ...quotiens maior numerus totum intra se minorem continet et eius aliquantas insuper partes. Et se duas quidem supra continet, vocabitur proportio superbipartiens, ut sunt quinque ad tres, sin vero tres super continet, vocabitur supertripartiens, ut sunt septem ad quattuor, et in ceteris ...' Cf *Lucidarium* 7.1.12-17.

⁷Cf. *De inst. mus.* 1,8 (193,20-22): Multiplicitas igitur, quoniam finem crescendi non habet, numeri maxime servat naturam.

⁸Superparticulare vero iam ab unitate solo gradu remotum, a binario prorsus inchoans, et e contra continuae quantitatis proprietatem retinens, naturalem etiam suae successionis nunquam disiungit cursum.

⁹Porro discreta quantitas numeri sunt qui sumunt a minimo principium, hoc est ab unitate finita, verum ad maiora tendentes in infinitum con crescunt.

¹⁰Continua vero quantitas est omne corpus solidum quod certam habet ac definitam omnino mensuram, ut linea pedalis aut aliud quodcumque corpus definite mensuratum, sed e converso dividi potest in infinitum. ¹¹Istud autem genus superpartiens, ut ad proposita revertar, iam ab unitatis integritate duplici gradu seiunctum; sicuti tertium est in ordine, sic a ternario capit exordium totamque naturalis ordinis numerorum dirumpit successionem. ¹²Intactum etenim quaternarium si relinquas, primam habes ilico superbipartientem proportionem, quinque tribus ut dixi comparatis; et si, quinarium atque senarium pro nihilo ducens, septem ad quatuor compares, primam aequae supertripartientem; sicque procedendo semper ac modo tres modo quatuor modo plures aut pauciores numeros inter maiores ac minores simul comparandos, prout hic patebit, relinquendo. ¹³Mirum ergo si genus istud ita distractum et ab unitatis integro fere totum alienum, generare nihil valeat quod sit in sonis ac vocibus consonum? ¹⁴Pax enim ab unione nascitur, et ab integro concordia procedit.

9. est *om* A

11. dirupit A

⁸The superparticular genus is but one step removed from the initial unity, and certainly begins at the figure two; it, on the contrary, possesses the properties of continuous quantity,⁸ and the natural course of its progression is never disturbed.

⁹Further, discrete quantity means those numbers which have their origin in the smallest possible unity, that is, they begin at the finite figure one, and progress to bigger figures. There is no limit to the extent of their growing. ¹⁰The term continuous quantity is applied to any solid body which has definite and absolute measurements, for instance a line the length of a foot, or any other object with clearly defined measurements, but which, on the other hand, can be divided up into infinity.⁹ ¹¹To return to the subject, the superpartient genus is two steps removed from the integral prime unity: just as it ranks third in the order of types, so it has its beginning at the figure three, and breaks entirely the succession of the natural order of the numbers. ¹²Indeed, if you leave the figure four untouched, you immediately have the first superbipartient ratio, 5:3, which I have mentioned previously. Further, if you ignore the figures five and six, and relate seven to four, you then have the first supertripartient ratio. By always proceeding in this way, you obtain further superpartient ratios—by leaving out three, or four, or more, or fewer numbers, between the greater and smaller numbers which are to be related together, as shown here. ¹³Is it surprising therefore that this genus cannot produce anything that can be described as consonant in the world of sounds and pitches, if it is so divided, and indeed totally removed from the integral quality of the initial unity? ¹⁴For peace is born of union, and harmony from wholeness.

⁸Cf *De inst. mus.* 1,8 (22-24): Superparticularitas autem, quoniam in infinitum minorem minuit, proprietatem servat continuae quantitatis. Cf *Lucidarium* 12.1.3-7.*

⁹Cf. *De inst. mus.* 2,3 (228,16ff).

15Radices ac omnium superpartientium primae proportiones:

III IIII V VI VII VIII IX X

15. superparticularium A

¹⁵The roots and the first ratios of all the superpartient numbers:

III III V VI VII VIII IX X

¹Capitulum quartum: ²Multiplex superparticulare musico non esse
necessarium.

³Multiplex superparticulare, quod ad nil utile musico probatur aut necessarium,
siquidem tam a multiplici quam a superparticulari non ab re traxit istud
vocabulum, in eo enim quod, ad instar multiplicis, minorem duplicat numerum
triplicat aut quadruplicat et caetera, videtur eiusdem primi generis imitari
naturam, et quia maior desuper aliquam semper habet particulam, putatur etiam
habere superparticularis proprietatem. ⁴Hoc genus quartum est, ab integro tam
longe positum, ut quamquam minus pluries ac pluries multiplicet, par maiori
nunquam efficitur, si non una particula suppeditet.

⁵Est igitur multiplex superparticulare quando maior numerus minorem in se
totum continet bis ter quater aut quotienslibet, ac insuper unam eius aliquam
partem. ⁶Qui si bis illum habeat et eius alteram sive mediam partem, erit duplex
sesquialter, et si bis iterum, ac eius desuper tertiam partem, duplex
sesquitertius; sed si ter, et eius mediam ultra partem, triplex dicetur sesquialter,
et sic de reliquis.

⁷Harum autem proportionum habendi radices hic erit modus. ⁸Sicuti superius
habere volens primam superbipartientem, unum de medio ternarii et quinari
vacare fecisti numerum, ac post quaternarium duos et post quinarium tres,
sicque de singulis, ita si duplas habere vis

1. A 10v H 13r
3. numerum *supra lin* H
 imitari A
5. minorem *in marg* H
 quater *supra lin* H
 aut *om* A
6. iterum *supra lin* H

¹Chapter IV: ²The multiple superparticular genus is not needed in music.

³The multiple superparticular type, which is proved to have nothing useful or necessary for the musician, since, with good reason, it derives this name both from the multiple and from the superparticular, in so far as, like the multiple type, it doubles, triples, quadruples and so on a smaller number, seems to imitate the nature of the first type; and because the greater number always has one fraction remaining, it is regarded as also having the characteristics of the superparticular genus. ⁴This is the fourth genus, and it is so far removed from wholeness that however frequently one multiplies the smaller number, it never comes to equal the larger without one fraction being supplied.

⁵Thus, the multiple superparticular genus exists when the larger number contains within itself the smaller twice, three times, four, or as many times as one would wish, plus one remaining fraction of that number. ⁶If the greater number contains the smaller twice, plus another half part of it, this is referred to as 'duplex sesquialter'. If it contains the smaller number twice, and a third part of it remains, the term to use is 'duplex sesquitercian'. Again, if it contains the smaller number three times, and a half fraction of it remains, this is called 'triplex sesquialter'.¹⁰ And so it continues.

⁷Here is the way to calculate the roots of these ratios. ⁸Just as when above you wished to produce the first superbipartient ratio, you left one gap between numbers three and five, two gaps after the figure four, and three after the figure five, and so on, so if you wish to produce the duple multiple

¹⁰Cf. *De inst. mus.* 1,4 (192,1-7): ... cum scilicet maior numerus habet in se minorem numerum vel bis vel ter vel quotienslibet atque eius unam aliquam partem, et se eum bis habet et eius dimidiam partem, vocabitur duplex supersesqualter, ut sunt quinque ad duo: sin vero bis minor continebitur et eius tertia pars, vocabitur duplex supersesquitercius, ut sunt septem ad tres. Cf *Lucidarium* 7.1.19-24.*

huiusmodi proportiones multiplices superparticulares, duplos de medio maioris et minoris in prima vacare numeros necesse est, in secunda vero tres, ac in tertia quatuor, ac deinceps praecedendo per hunc modum.

⁹Cum itaque genus istud a binario numero sumat exordium, veluti superparticularitas, a qua partim est denominatum, si reliqueris de medio ternarium et quaternarium, habes ilico primam duplicem sesquialteram, a quinario scilicet ad binarium. ¹⁰Et si quatuor quinque sex non numerentur, duplex erit sesquitertia, septem tribus comparatis; sin autem tria vacent quatuor quinque sex, triplex sesquialtera fiet, a septem in duobus; et si quatuor quinque sex septem et octo cum novem pro nihilo sint, erit triplex sesquitertius, a decem in tribus. ¹¹At quemadmodum utique processus esse potest infinitus, sic frequenter in caeteris vocabula varianda tam multipliciter quam superparticularitatis, quorum omnium haec erit prima descriptio:

¹²Radices ac omnium primae multiplicium superparticularium proportiones:

II III IIII V VI VII VIII IX X

-
8. medio *om* A
in secunda.....hunc modum *in marg* H
10. non *supra lin* A
et *supra lin* H
cum novem *supra lin* H. nonem octo A
11. Ad quem modum *pro* At quemadmodum H

superparticular ratios, then you will need to omit two numbers between the greater and smaller to produce the prime ratio, three for the second, four for the third, then proceed in this way for the rest of the numbers. ⁹And so, since this genus has its beginning at the number two, in common with the superparticular genus, from which it partly takes its name, if you totally omit the numbers three and four, you immediately have the first type within this category—the 'duplex sesquialter', that is, the ratio 5:2. ¹⁰Further, if one discounts the numbers four five and six, the 'duplex sesquitercian' will manifest itself—that is, the ratio 7:3; but if the numbers three, four, five and six are missing, the 'triplex sesquialter' will come into being—that is, the ratio 7:2. If one discounts the numbers four, five, six, seven, eight and nine, we will have the 'triplex sesquitercian'—the ratio 10:3. ¹¹But in the same way as this process can be infinite, thus frequently it is necessary to change the terminology for the rest of the numbers—as much for the multiplicity as for the superparticularity. Here you have a basic description of all these types.

¹²The roots and prime ratios of all the multiple superparticular types:

II III IIII V VI VII VIII IX X

¹Capitulum quintum: ²Multiplex superpartiens nullam in musica procreare concordiam, ac in eo discordem cadere diapason diatessaron.

³Multiplex superpartiens a multiplici genere nomen habet et a superpartienti simul; ex illis namque duobus compactum est, non aliter quam multiplex superparticulare tam ex superparticulari quam ex multiplicibus. ⁴In hoc siquidem quod minorem numerum bis ter quater aut quotienslibet multiplicat, quodammodo multiplex est, sed in hoc quod plures insuper partes habere solet superpartiens etiam. ⁵Hoc genus quintum est inaequalitatis ac ultimum, ab unione parilitatis plus quam alia remotum, dum et minus pluries multiplicat et multas desuper capit partes.

⁶Est ergo multiplex superpartiens quando maior numerus in se totum minorem habet plus quam semel, ac insuper plures partes eius; et si bis illum utique contineat ac desuper duas partes illius habeat, duplex superbipartiens erit; et si ter triplex ac sic de multis. ⁷Inchoatur itaque genus istud a ternario sicut superpartiens, a quo ex parte nascitur, et si de medio vacent quatuor quinque sex et septem, mox primam duplicem superbipartientem habes, octo tribus comparatis. ⁸Quod si rursus octo novem atque decem cum quatuor antescryptis non numeres, ac undecim ternario compares, triplex superbipartiens est, et sic de infinitis. ⁹Quarum profecto radicum ac omnium huiuscemodi generis principalium proportionum descriptio haec est.

-
- | | |
|----|---|
| 1. | A 11r H 13v |
| 6. | utique <i>om</i> A
habeat <i>in marg</i> H |
| 7. | iacent <i>pro</i> vacent A |
| 9. | huiusce <i>pro</i> huiuscemodi H |

¹Chapter V: ²The multiple superpartient genus produces no consonance in music; the discordant diapason diatessaron falls within it.

³The multiple superpartient genus takes its name from both the multiple and superpartient genera at one and the same time. It is a combination of both of these in the same way as the multiple superparticular genus derives as much from the superparticular as from the multiple genus. ⁴Inasmuch as it multiplies the smaller number twice, three times or four, or as many times as one wishes, it is in a sense the multiple genus, but it is also superpartient to the extent that it has more than one fraction remaining. ⁵This is the fifth and last genus of inequality, further removed than the others from the binding force of equality. For it multiplies the smaller several times, and has several fractions remaining.

⁶Therefore, the multiple superpartient genus exists when the larger number contains within itself a smaller whole number more than once and when several fractions remain; if the larger contains the smaller twice, and two parts remain, the duple superpartient type will be produced; if three times, the triple, and so on, for many numbers. ⁷This genus has its beginning at the number three, in common with the superpartient genus, from which it is partly derived. If the numbers four, five, six and seven are left out entirely, you instantly have the first duple superbipartient type, or the ratio 3:8. ⁸Again, if you omit the numbers eight, nine and ten, together with the four numbers previously mentioned, you have the ratio 3:11, that is, the triple superbipartient type. And so on into infinity. In fact, this is a description of these roots and all the main ratios of this genus.

¹⁰Radices ac omnium primae multiplicium superpartientium proportiones:

III III V VI VII VIII IX X XI

¹¹In hac ergo proportione, duplici videlicet superbipartiente, diapason diatessaron resonat constans ex phthongis undecim et ex tonis septem cum tribus semitoniis minoribus; quod hoc ritu probari potest. ¹²Sit AB dupla proportio, et C sesquitertia, certe quod AC dupla superbipartiens sit necesse est.

Duplex superbipartiens		
III	VI	VIII
A	B	C
Dupla sesquitertia		
Diapason diatessaron		

¹³Et quis hanc vere consonantiam appellare poterit unquam non solum in humanis vocibus sed etiam in cunctis musicis instrumentis discordem?

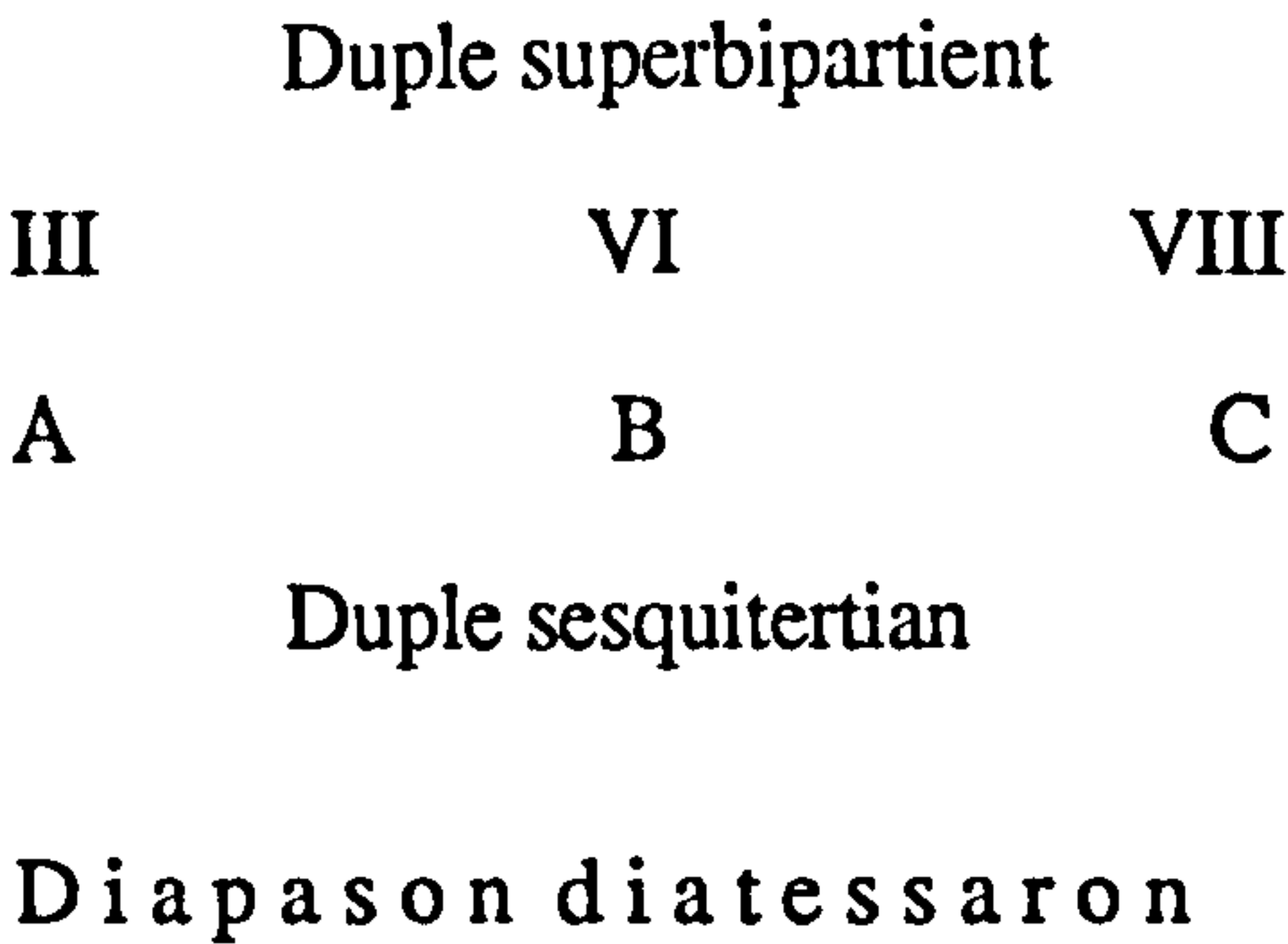
¹⁴Dicat Ptolomeus quicquid velit; ego contra naturam rationi concordem nulli veram adhibere queo fidem. ¹⁵Nam si nulla prorsus in his quae procedunt huic duobus inaequalitatis generibus resonat musicalis consonantia ob nimiam ab aequalitate sui distantiam, quanto magis in isto nil consonat quod plus illis est distractum et ab unitate remotum?

11. probare *pro* probari A
12. et *om* A
(necesse est) quod hac descriptio probat *dele* H
14. Ptolameus A
15. (in isto) non (nil) *dele* H

¹⁰The roots and the prime ratios of all the multiple superpartient numbers:

III III V VI VII VIII IX X XI

¹¹The sound of the diapason diatessaron arises out of this ratio—that is to say, the duple superbipartient. This interval is made up of eleven pitches, and from seven whole tones and three minor semitones. This can be proved in the following way: ¹²let A B represent the duple ratio, and B C the sesquitertial, then clearly it must follow that A C represents the duple superpartient ratio.



¹³But who can ever truly refer to this as a consonance when it is a dissonance, not only in music for the human voice, but also in all instrumental music?

¹⁴Ptolemy may say what he will¹¹: I cannot have genuine trust in anyone when he opposes nature which is in harmony with reason. ¹⁵For if no musical consonance makes itself heard in these two genera of inequality which precede this one, because of their excessive distance from equality, then how much more dissonant is that sound which is more separate than they are, and further removed from the initial unity?¹²

¹¹Johannes is probably dependent upon Boethius concerning Ptolemy's opinion: see *De inst. mus.* 5,9.*
¹²Concerning dissonance of the diapason diatessaron, see *De inst. mus.* 2,27.

¹⁶Natura enim, quam condidit Deus, nil extra duo prima genera illa creavit in musicis consonum, quod palpare quaerentibus clarum praebet monochordum.

¹⁶For Nature, whom God brought into being, created no consonance in music apart from these first two genera; the monochord makes this clear to those who wish to try it out.

¹Capitulum sextum: ²Quid sit monochordum, curve sumpsit tale vocabulum.

³Palpare volens itaque quid in musica consonum quidve sit dissonum aut perfectum et imperfectum, ut verum fatear, modum magis veracem non habes quam per chordam divisam in monochordo. ⁴Quamobrem in primis non est ambigendum a *monon* Graece, quod est *solum*, et *chorda* Latine, quasi *solichordium*, dictum esse monochordum, non quod solam chordam habeat istud instrumentum, sed quia quicquid in multis solet fieri chordis, si se feriendo non impugnent claviculae, totum in una fiet. ⁵Habet igitur istud instrumentum varios chordarum ordines, binas atque binas intendentes chordas, non tamen ut soni sint numero plures, sed quia chorda duplex virilius quam simplex resonat unum et idem, et si solam omnes chordam ferirent claviculae, quod una saepius non impediret alteram foret impossibile. ⁶Verum in aliis fere cunctis instrumentis musicis intensa sola chorda vel remissa solum emittit sonum grave aut acutum, quae si paululum a suo statu mutetur quavis de causa, iam non illud resonat sed aliud quam resonabat antea. ⁷Monochordum autem sive tetenderit chordam sive laxaverit unum est et idem; chorda namque divisa sicut in suis partibus sive tensa sive laxa non variatur, ita neque fallit neque fallitur.

⁸Frustra quis ergo nititur putans in curta chorda multos posse creare sonos, quoniam etsi graves bene resonent longam inter se partiendo chordam, quod acutae surdae sint necesse est ob

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- | | |
|----|-------------------------------|
| 1. | A 11r H 14r |
| 4. | est <i>supra lin</i> H |
| 5. | tamen <i>om</i> A |
| 6. | fere cunctis <i>in marg</i> H |
| 7. | tenderit A |
| 8. | est necesse A |

¹Chapter VI: ²What the monochord is, and why it is called by such a name.

³If you want to try out¹³ what is musical consonance or dissonance, whether perfect or imperfect, to tell the truth, there is for you no method which is more reliable than the divided string on the monochord. ⁴And so, above all, it cannot be disputed that the monochord derives its name from the Greek word *monon* (in Latin *solum*) and the Latin word *chorda*: it could be called a *solichordium*. This is so, not because this instrument has only one string, but because whatever usually happens on several strings will happen—in this case—entirely on one string, as long as the keys¹⁴ do not clash by striking each other. ⁵This instrument therefore has various ranks of strings, and the strings are tuned in pairs; this is not so that more pitches are sounded, but because a double string has a richer sound than a single one, and if all the keys were to strike a single string, it would be impossible for one not to get in the way of the other frequently. ⁶Nevertheless, as far as almost all other musical instruments are concerned, a single string, whether it is tightened or slackened, produces one sound only at a low or high pitch; if for whatever reason its state is changed, be it ever so slightly, it will not produce the same pitch, but one different from the previous one. ⁷It is all one and the same, whether the string is tightened or not on the monochord, for just as the string when divided into its constituent parts does not vary whether it is tight or slack, so it does not deceive one, neither will it be compromised itself.¹⁵

⁸Vain then are the efforts of anyone who thinks he can produce a large variety of sounds on a short string, for even though the low pitches might sound

¹³The Latin verb *palpo* implies more than just ‘trying out,’ namely a touching or plucking of the string to produce the sounds rendering a consonance or dissonance.

¹⁴I translate the word *clavicula* as ‘key,’ while the exact meaning of the term remains in doubt. Whether the term refers to keys which are ‘played’ or to the ‘tangents’ which touch the strings is an open question. Cf. below, sentence 14.

¹⁵Cf. *De inst. mus.* 1,11 (198,26-28): ... quod regula quaedam sit huiusmodi inspectio fixa firmaque, ut nullum inquirentem dubio fallat iudicio; and [Pseudo-)Odo, *Dialogus* (GS 1 p. 253a): quod enim bene mensuratum est, nunquam fallit.

parvulam quam sortiuntur eiusdem chordae portionem. ⁹Discreta namque quantitas, ut super dictum recolo, crescit in infinitum, continua vero per contrarium nunquam decrescere cessat.

¹⁰Vis nunc bonum fabricare monochordum? ¹¹Elige tibi primo lignum durum ac bene siccum, et ad resonandum super omnia dote naturali peraptum. ¹²Idque sit in radio solis et non in umbraculo natum, neque per se mortuum, sed cum adhuc viride staret ac sanum, florente luna prorsus e trunco decisum. ¹³Cave rursus diligenter ne capsella curta sit aut stricta, sed alterum concordet alteri iustis dimensionibus, ac ob illam quam de brevi chorda dedi rationem sit omnino longa. ¹⁴Quae dum cuncta sic observaveris, nihil profecisti, nihil habes, nisi chordas iustissime per partes divisas, arithmetica dictante, iudices, earumve claviculas aequissime suis in locis disponendo colloques.

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9. crescit A
 (infinitum) discreta *dele* H
 continua *in marg* H
 decressere A
 10. bonum monochordium fabricare A
 11. primo tibi A
 et *pro* ac A
 12 recisum *pro* decisum A

successfully on the long string by dividing it up amongst themselves, the high must unavoidably remain indistinct because of the small section of this same string which they are allotted. ⁹For discrete quantity, as I recall having said previously, increases to infinity; continuous quantity, on the other hand, never stops decreasing.¹⁶

¹⁰Do you wish now to build a workable monochord for yourself? ¹¹First, select a piece of wood which is hard and thoroughly dry, particularly suited above all to sound production because of natural properties. ¹²The wood should have been born under rays of the sun, and not in the shade; it should not have died a natural death, but should should have been cut from the trunk while still standing green and healthy by the light of the full moon. ¹³Again, take particular care that the box itself is not too short and narrow, and that one part balances the other with the right dimensions. Also make sure that the box is quite long, because of what I have said above about the short string.¹⁷ ¹⁴Even though you observe all these pieces of advice, you have achieved nothing, you have nothing, unless you make the correct judgement about the divisions of the strings according to the laws of arithmetic, and set their corresponding keys properly by placing them in their appropriate places.

¹⁶See above 2.3.7.

¹⁷See above sentence 8.

¹Capitulum septimum: ²De dimensione monochordi per genus diatonicum.

³Age nunc o lector, fac tibi figuram huic de quo loquor instrumento simillimam, cumque duas per longum obduxeris lineas a capitello sinistro videlicet ad capitellum seu, ut quidam aiunt, ad scabellum dextrum, finge quod sit monochordum proprium, in quo saltem quindecim vis creare voces philosophorum. ⁴Primam autem iuxta sinistrum capitellum ponere debes claviculam, non adeo prope tamen ut, si verum esset monochordum, vox illa surda fieret, aut omnino pulsante clavicula chorda non resonaret. ⁵Et quis, oro, scire non debeat ab hoc solo primo sono totam libere chordam esse possessam, ac per hoc illa tremebunda tantumque gravior quantum et ad motum sera gravem illam prae caeteris vocem atque grossiorem emittat?

⁶Vox monochordi prima:

Erit ergo sonus iste principalis vox illa quam superius proslambanomenos Graece nuncupavimus, quae quidem consonantia non est, sed phthongus et unisonus, a quo caeteri soni sicut ab unitate numeri nascentur omnes.

1. A 11r H 15r
3. nunc *om* A
 per longum duas A
4. sinistram A
5. et *om* A
 grossiorem atque A

¹Chapter VII: ²The divisions of the monochord according to the diatonic species.

³Now come, dear reader, make for yourself a diagram which resembles as closely as possible this instrument which I am now discussing. Draw two lines along from the left hand head to the right—some refer to this head as *scabella*;¹⁸ then imagine that this is an actual monochord on which you can produce at least the fifteen pitches invented by the ancient philosophers. ⁴You must place the first key next to the left hand head, but not so near that the pitch would be indistinct, were this the monochord proper, or the string did not vibrate at all on being struck by the key. ⁵Everyone should be aware that the whole string, when not stopped, is freely occupied by this one single basic sound, and that, because of this, the string, when vibrating, being heavier, and accordingly slower to move, produces that sound which is lower compared to the others, and fuller.¹⁹

⁶The first pitch of the monochord:

This principal pitch then will be the one which we previously referred to by the Greek term *proslambanomenos*. This is not a consonance, but one single sound for which the Greek word is *phthongos*.²⁰ It is from this sound that the rest of the sounds will be born, in the same way as numbers are born from initial unity.

¹⁸Cf. Prosdocimo de Beldomandi, *Parvus tractatulus de modo monochordum dividendi* 3 (ed. Herlinger p. 72,8-9): ... gignetur postea in parte opposita ipsi scabelo ...

¹⁹Cf below sentences 10 and 12.

²⁰See *De inst. mus.* 1,8 (195,3-5)*

⁷Vox [monochordi] secunda:

In hac autem voce prima constituta pone sextum sive compassum, totamque chordam illam in novem passus aequissimos metire, quibus in dextero scabello completis, ubi primus finitus est secunda clavicula tangat. ⁸Haec vox hypate hypaton erit, et tonus inter has duas voces in vero monochordo resonat infallanter, quoniam vox illa prior totam chordam in novem passus metiens hanc secundam quae per octo dividit in se totam habet ac eius octavam partem, in quo sicut iam promisi palpatum est in proportionem sesquioctava consistere tonum.

⁹Quis, oro, nesciat omne quod continet esse maius eo quod continere videtur?

¹⁰Hinc est quod chorda longior, hoc est novem passuum, gravior apparet, atque graviolem emittit sonum; sequens vero quia brevior, id est octo passuum, subtiliorem ac magis acutum. ¹¹Quamquam enim Aristoxenus philosophus, teste Boetio, gravitatis et acuminis differentiam in qualitate putaret, nihilominus Pythagorici totam hanc esse rationem in quantitate iudicaverunt, naturae videlicet imitatores ac veri contemplatores. ¹²Aiebant enim *spissiora ac subtiliora corpora*, sicut scribit Boetius, *acumen, rariora et vastiora edere gravitatem*. ¹³Videmus etiam si quid relaxatur in musicis quasi fiat rarius atque crassius gravem emittere sonum, quod si tensum fuerit subtiliorem, velut spissius ac subtilius tenuatum.

7. dextro A
10. (quia) curto *dele* H
11. enim *om* A
(putaret) esse *dele* H
12. spissiora A
sicut scribit Boetius *supra lin* H
redere *pro* edere A
13. (rarius) a *dele* H
subtiliorem *in marg* H

⁷The second pitch [of the monochord]:

Now place your compass²¹ at this first pitch which you have established; measure out nine absolutely equal parts on this string, and when this has been done right up to the right hand head, the second key should make contact where the first partition ends. ⁸This then will be the pitch called the hypate hypaton—on the real monochord, a whole tone sounds without fail between these two pitches. This is because the first pitch, which divided the string into nine parts, contains within itself the whole of the second pitch, which divides the string into eight parts, plus an eighth fraction of that pitch. It is in this, as I have already promised, that you discover by experiment that the whole tone consists in the ratio 9:8. ⁹Who, pray you, does not know that everything which contains is larger than what it is seen to contain? ¹⁰From this stems the fact that the longer section of string—that is the one containing nine divisions—seems to be weightier, and produces a deeper sound; the following, because it is shorter—containing the eightfold division—a thinner and higher sound.

¹¹Although the philosopher Aristoxenus, as Boethius attests, thought that the difference between high and low pitches was qualitative, the Pythagoreans on the other hand decided that the whole rationale was based upon quantity, being of course imitators of nature and contemplators of the truth.²² ¹²For their claim was that closely packed and thinner bodies produce high pitches, as Boethius wrote, whereas larger and less dense bodies produce low ones.²³ ¹³We observe that whatever possesses less tension in music also produces a low pitch, being as it were less densely packed and thicker, but if it has more tension, a finer sound, being more closely packed, and fine-drawn.

²¹Johannes's choice of words here, *compassus sive sextus*, seems to reflect Italian usage, cf. Iohannis Spatarii *Opera Omnia* 1, *Bartolomei Ramis Honesta Defensio in Nicolai Bvrtii Parmensis opvscvlvm* (Bologna, 1491), ed. Ioseph Vecchi, Bologna 1967, fol. 45v: "... e li fixo lo sexto debe essere riuoltato uerso la sinistra: nel qual compasso ..." Johannes uses the word *compassus* rather than the more classical *circinus*, for compass, and *sextus* merely represents a synonym for compass. In the English text *compassus sive sextus* will be translated simply as 'compass.'

²²*De inst. mus.* 5,4 (355-56).*

²³Cf. *De inst. mus.* 5,4 (355,27-29): etenim spissiora ac subtiliora corpora acumen, rariora et vastiora edere gravitatem.*

¹⁴Vox monochordi quarta:

His itaque duabus in monochordo creatis vocibus, non iam erit procedendum per ordinem, quin potius quartam ante tertiam creare nos oportet. ¹⁵Quare?

Quoniam quidem post primum tonum succedit ilico semitonium, quod quia motus non est integer musicus, nullam chordam certa dimensione metitur.

¹⁶Certus ergo nullum per se creari posse maius aut minus semitonium, totam chordam denuo per quatuor passus aequissimos ab ipso primo creato sono discurrere debes, ac ubi primus finitur passus, quartam claviculam figere.

¹⁷Haec quarta vox lychanos hypaton est, quae perfectam in omni vero monochordo resonat diatessaron ad vocem primam, chorda enim quatuor passuum eam quae trium est in se totam continet ac desuper eius tertiam partem.

¹⁸Quo viso, quis quod in sesquitertia proportionem diatessaron consonet ambigit?

¹⁹Ad monochordum pergat ac sic esse in manu et aure discat.

²⁰Vox monochordi tertia:

Pone nunc in ea quam nuper creasti voce quarta compassum, et si totam in octo passibus divideris chordam, fixumque rursus in ipsa voce quarta sextum versus levam retorseris; ubicunque nonus ille passus retortus quieverit, ibi tertia clavicula, quae parhypate hypaton est, ad sequentem quartam claviculam tonum resonare debet.

14. (duabus) creatis *dele* H
 16. aequissimo A
 17. quarta *in marg* H
 18. diatessaron consonet *om* A

¹⁴The fourth pitch of the monochord:

And so, now that we have produced these two pitches on the monochord, it will be necessary to proceed out of the strict order; rather, we need to produce the fourth pitch before the third. ¹⁵Why is this? It is because a semitone follows directly on the first interval of a tone: this cannot measure any string with a fixed dimension because it is not a complete musical progression. ¹⁶You must be sure therefore that a major or minor semitone cannot be produced on its own; starting with the first sound that was produced, you must measure out the whole string afresh into four equal sections, and where the first section ends, there you must place the fourth key. ¹⁷This fourth pitch is the lychanos hypaton, which on every real monochord produces a perfect diatessaron in relation to the first pitch; for the string which is divided into four sections contains the part with three sections totally within itself, and also a part equal to a third of it. ¹⁸Accepting this, who then doubts that the sound of the diatessaron arises out of the 4:3 ratio? ¹⁹Let him proceed on the monochord, and learn that this is the case, both manually and aurally.

²⁰The third pitch of the monochord:

Now place the compass on the fourth pitch—which you have just produced. If you divide the whole string into eight sections, fix the compass again on the fourth pitch, and move it to the left, wherever a ninth such section comes to end going backwards, at that point the third key should sound at a tone's distance from the fourth key which follows. This third pitch is the parhypate hypaton.

²¹Primum monochordi minus semitonium:

Illud autem spatium, quod cadit inter vocem secundam et hanc nuper creatam tertiam, minus atque fixum semitonium est. ²²Ea namque minora semitonia, quae post duos tonos vel ante vel infra cadunt, et permanent in ordine naturali, fixa sunt, ea vero quae diviso tono fieri solent ad tempus et ad tempus repelli mobilia.

²³Sic sit omne semitonium minus aut maius, mobile vel fixum, quia nullatenus, ut dixi, chordam aequè partiri valet; sic inquam per quosdam circuitus integrorum motuum musicorum generari necesse est.

²⁴Vox monochordi quinta:

Iterum in prima voce ponens compassum, totamque chordam tribus in passibus partiens, ubicumque primus passus fixerit pedem, ibi quintam et tu fige claviculam. ²⁵Haec est hypate meson, quinta monochordi vox, diapente perfectum habens ad primam, eo quod illa trium passuum hanc duorum in se totam suscipiat, ac eius insuper mediam partem; in quo luce clarius apparet id ipsum a natura diapente perfectum in proportionē sesquialtera constitutum.

²⁶Vox monochordi sexta:

Nunc autem pone sextum in tertia voce vel compassum, totamque chordam in quatuor partire passibus, et affige sextam claviculam ubi primus passus se fixerit. ²⁷Haec erit sexta vox, quae parhypate meson dicitur, et ad praedictam vocem tertiam reddens diatessaron, et ad quintam sibi proximam minus semitonium, quod haberi non poterat nisi per hunc aut similem modum.

22. fieri solent tono A
 23. sic *pro* sit A
 24. finge *pro* fige A
 25. (quo) manu *dele* H

²¹The first minor semitone of the monochord:

That interval which falls between the second pitch and the third which you have just produced is the fixed minor semitone. ²²For those minor semitones which occur after two whole tones, or before or between them, and are permanencies in the natural order of things are fixed, while those which come into being momentarily through the division of the whole tone are moveable, and are as quickly dismissed.

²³Let every semitone be like this, whether it is of the minor or major variety, either moveable or fixed, because, as I have pointed out, in no way can it divide the string into equal parts. It is in this way, I say, that the semitone must be brought about by certain circumventions of complete musical progressions.

²⁴The fifth pitch of the monochord:

Place the compass again on the first pitch, and divide the whole string into three parts. At the point where the first section establishes its foot, there you must place the fifth key. ²⁵This pitch is the hypate meson, the fifth pitch of the monochord; it forms a perfect diapente in relation to the first pitch because the three-fold string contains the two-fold section entirely within itself plus a half of it, in view of which it is as clear as day that this interval is a perfect diapente, established by nature in the 3:2 ratio.

²⁶The sixth pitch of the monochord:

Now place the compass on the third pitch, and divide the whole string into four sections; then place the sixth key where the first section establishes itself.

²⁷This is the sixth pitch, which is called the parhypate meson. It produces the interval of a diatessaron in relation to the third pitch previously discussed; in relation to its nearest neighbour, the fifth pitch, it lies at a distance of a minor semitone. This could not be produced unless it was by this, or by a similar method.

²⁸Vox monochordi septima:

Quod si rursus in quarta voce sextum posueris, et quaterno passu totam chordam discurreris, ubi primus passus finem habet, ibi septimam, quae lichanos meson est, appone claviculam, ut habeas ad eandem quartam vocem in sesquitertia diatessaron, et ad sextam proximam in sesquioctava tonum.

²⁹Vox [monochordi] octava:

Redi nunc ad principalem omnium quas procreasti vocum, in qua quidem fixo sexto chordam in aequissimis duobus divide passibus, ac ubi primus terminabitur passus, octavam ibi ferire claviculam compelle. ³⁰Vox ista, vox octava, quae mese dicitur, hoc est media, veram aequisonans cum prima voce diapason consonantiam consonantiarum ac perfectissimam perfectarum.

28. vocem quartam A
 et *supra lin A*
 29. terminabitur *in marg H*

²⁸The seventh pitch of the monochord:

Again, if you place the compass on the fourth pitch and measure the whole string into four parts, at the point where the first section ends, there you must place the seventh key. This pitch is called the lichanos meson. The result is that you have the interval of a diatessaron in relation to that fourth pitch with the ratio 4:3, and it lies at a tone's distance from its neighbour the sixth pitch, using the ratio 9:8.

²⁹The eighth pitch [of the monochord] :

Return now to the first of all the pitches you have produced. Set your compass, and divide the string into two exactly equal parts. Where the first section ends, there make the eighth key strike. ³⁰This, the eighth pitch, is called the mese, or middle pitch; it sounds a perfect diapason in relation to the first pitch, an interval which is the consonance of consonances, and the most perfect of perfect consonances.

¹Capitulum octavum: ²Optimam diapason in optimo genere multiplici constitutam et esse aequisonam.

³Aequisonam ergo diapason, quae prout ante parum ostensum est, chordam monochordi per medium dividit, quis palpare manu non valeat in duplo numero divinitus collocatam? ⁴Chorda namque duorum passuum in se totam habet dupliciter eam quae tantum occupat unum. ⁵Hinc est quod Ptolomeus, teste Boetio, vocat illam aequisonam ac bisdiapason ex ea duplicata compositam, dicens aequisonas esse *quae pulsae simul unum ex duobus atque simplicem quodammodo efficiunt sonum*, consonas vero *quae compositum permixtumque licet suavem*, ut est diatessaron, diapente et diapason diapente simul. ⁶Quis hoc aure, quaeso, de facili non percipiat, et in diapason duo simul aequisonare sentiat unum et idem? ⁷Ea procul dubio differentia quam vides in chordae partibus, ea est quam sentis in simul pulsis duobus diapason extremis; et sicut in monochordo nulla est inter chordam duorum passuum et eam quae solum habet distantia, nisi quod illa longior et ista brevior, quae tamen est eadem duplicata, ita quidem nihil differunt extremae diapason vocolae, nisi quod gravis

-
- 1. A 12v H 16r
 - 3. collocatum A
 - 5. quod *om* A
 - 6. sentiant A
 - 7. solam A
 - quae tamen eadem est duplicata *in marg* H

¹Chapter VIII: ²The most excellent interval of the diapason is built on the most excellent multiple genus; it is 'equison'.²⁴

³The interval of the diapason then is 'equison'; as I have pointed out a little before this, it divides the monochord string into two halves.²⁵ Who would not have the ability to feel by hand that this interval is based by divine law on the duple ratio? ⁴For the string which is divided into two parts contains twice within itself the string which occupies only one part. ⁵It was from this fact that, according to the evidence of Boethius, Ptolemy referred to this interval as being 'equison', as he did the double diapason which is based on the doubling of it; he claimed that equison intervals are those which are made up of pitches which, struck at the same time, in some way produce one single and kind of simple sound from two distinct ones,²⁶ whereas he claimed that consonant intervals were those which were composite and mixed,²⁷ for example, the diatessaron, the diapente and the diapason plus diapente-intervals which were nevertheless pleasant-sounding. ⁶Who, I beg you, could not easily appreciate this to be the case by ear, and not realize that in the diapason two pitches sound at the same time, producing one same sound? ⁷There is no doubt that the difference which you perceive between the sections of the string is the same as the one you hear when the two extremes of the diapason sound together. Just as on the monochord there is no distinction between the string with two parts and the string with only one, apart from the fact that one is longer than the other, in fact twice the length of the other, so there is no difference between the two extreme pitches of the diapason apart from the fact that the deeper pitch produces a

²⁴Here I follow Bower in using the neologism 'equison' to translate *equisonus* (cf. Bower/Boethius p. 170, n. 33). 'Equison' thus becomes a usage parallel with 'unison.' The opinions of Ptolemy found in this chapter are taken from the fifth book of *De inst. mus.*, chapter 5.

²⁵See above 7.29.

²⁶*De inst. mus.* 5,11 (361,8-10): *aequisonae vero, quae simul pulsae unum ex duobus atque simplicem quodammodo efficiunt sonum ...**

²⁷*De inst. mus.* 5,11 (361,10-12): *Consonae autem sunt, quae compositum permixtumque, suavem tamen, efficiunt sonum.*

graviolem et acuta magis tenuem emittat sonum.

⁸Aequalitas etenim hoc habet proprium, ut semper aequalis sit quamquam
divisa mutet locum; nam etsi duae partes aequales divisi continui loco distent,
donec illarum immutetur quantitas, semper aequales sunt. ⁹Hanc igitur
aequisonam Ptolomeus quam pulchrer appellat, et alias consonantias, cum ab
hac aequalitate multum distare probentur.

¹⁰Neque enim diatessaron ac diapente chordam per medium dividunt, nec in
duplo numero cadunt, quamvis iunctae simul ad hanc aequalitatis unionem
attendant. ¹¹Haec idcirco de diapason proprietate dixerim et aequitate, quo
multis innotescat hanc esse quae nimis veraciter atque faciliter voces in
monochordo procreat ob sui iustitiam; ita tamen quod prius creata sit, ut in illo
monstratum est capitulo, cum omnibus videlicet tonis suis ac semitoniis aliisve
totis quibus constare probatur membris. ¹²Licet enim id variis fieri soleat
modis, haec nihilominus potior est monochordi dimensio, ut primum octo soni
formentur, dein fiat per diapason infinita, si necesse sit, processio.

¹³Vox monochordi nona:
Recordare lector itaque quod divisa tota chorda per medium primam tibi dederit
diapason in superiori capitulo, nunc autem si vis habere secundam ac vocem
nonam, pone sextum in voce secunda, quem ante creando primam posueras
siquidem in prima. ¹⁴Cumque per medium

8. enim *pro* etenim A
9. aequisione A
10. attingunt A
11. id circho A
 tonis *pro* totis A
12. dimissio A
 toni *pro* soni A
14. Vox monochordi nona *in marg* H

heavier sound and the higher a thinner sound.

⁸Equality has this property—that it always remains equal even though it may change its position because of division. For even if two equal parts of the divided whole differ in position, yet until their size is changed, they are always equal. ⁹Ptolemy therefore called this interval 'equison' which is a beautiful description; other intervals he called 'consonant' because they were shown to be far removed from this kind of equality.²⁸

¹⁰For the intervals of the diatessaron and the diapente do not divide the string into two equal halves, nor do they occur as a result of the duple ratio, though in combination they do attain this unity of equality. ¹¹Therefore, it is for this reason that I have mentioned these facts about the properties and the equality of the diapason interval—so that many people can become aware of the fact that this is the interval which, because of its purity, produces pitches on the monochord absolutely accurately and with ease. Thus it is that it was the first interval to be created, as I have shown in a previous chapter,²⁹ that is, together with its tones, semitones and all the other component parts which are known to constitute its make-up. ¹²Though the measurements on the monochord can be produced in different ways, nevertheless, the best way of doing it is to have the eight sounds formulated first of all, and then, if necessary, an infinite procession of pitches can be formed via the diapason.

¹³The ninth pitch of the monochord:

Remember then, dear reader, that when the whole length of the string was divided into two halves, as in the previous chapter, it gave you the first diapason; now if you wish to have a second diapason, and also the ninth pitch, then place on the second pitch your compass which you had previously placed on the first pitch to create the first diapason. ¹⁴When you have divided the

²⁸Cf. above, n. 19.

²⁹See above 1.4.15.

partitus fueris chordam, ubi primus passus quieverit, ibi nonam applica claviculam, ut habeas paramesen, vocem nonam, diapason ad secundam et tonum ad octavam.

15Vox monochordi decima:

Iterum a tertia voce totam in duos passus metire chordam, et si decimam in primo passu finito posueris claviculam, habes utique trite diezeugmenon, vocem decimam, diapason ad tertiam et ad nonam minus semitonium.

16Vox monochordi undecima:

A voce quarta similiter seca chordam per medium, ac undecimam in primo completo passu fige claviculam, et habebis paranete die zeugmenon vocem undecimam, diapason ad quartam et ad decimam tonum.

17Vox monochordi duodecima:

Verum a quinta voce chorda recte per medium dimensa, sed et clavicula post completum primum passum affixa, nete diezeugmenon vocem habes duodecimam, diapason ad quartam et ad undecimam tonum.

18Vox monochordi tertia decima:

Pone rursus in sexta voce compassum, totamque chordam bino passu discurre, finitoque primo, tertiam decimam ibi claviculam affige, quae sit trite hyperboleon, vox tertia decima, diapason aequisonans ad sextam, et ad duodecimam minus habens semitonium.

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- | | |
|-----|---|
| 16. | monochordi <i>om</i> H
finge <i>pro</i> fige A |
| 17. | recte <i>om</i> A
(post) com(pletum) <i>supra lin</i> H
volum <i>pro</i> vocem A
habent <i>pro</i> habes H |
| 18. | XIII H
(decimam) ibi..... decima (diapason) <i>om</i> A |

string in half, at the point where the first section ends, there place the ninth key. As a result, you have the paramese, the ninth pitch, which forms a diapason in relation to the second pitch, and which lies at a whole tone's distance from the eighth.

¹⁵The tenth pitch of the monochord:

Again, starting at the third pitch, divide the whole string into two parts; if you place the tenth key at the end of the first section, you will produce precisely the trite diezeugmenon—the tenth pitch—which forms a diapason in relation to the third pitch and lies at a minor semitone's distance from the ninth.

¹⁶The eleventh pitch of the monochord:

Likewise, starting at the fourth pitch, divide the string in half, and place the eleventh key where the first section ends. You will then have the paranete diezeugmenon—the eleventh pitch, which forms a diapason in relation to the fourth pitch, and lies at a whole tone's distance from the tenth.

¹⁷The twelfth pitch of the monochord:

Now the string is measured into two equal halves beginning at the fifth pitch, and the key is placed where the first section ends. You then obtain the nete diezeugmenon, which is the twelfth pitch. It forms a diapason in relation to the fourth pitch, and lies at a whole tone's distance from the eleventh.

¹⁸The thirteenth pitch of the monochord:

Again, now place your compass at the sixth pitch, and divide the string into two halves; where the first section ends, there place the thirteenth key. This pitch is the trite hyperboleon, the thirteenth pitch. It forms an equison diapason in relation to the sixth pitch, and lies at a minor semitone's distance from the twelfth.

¹⁹Vox monochordi quarta decima:

Post haec si chordam a septima voce totam duobus aequis passibus sulcaveris, ac in primo passu quartam decimam claviculam affixeris, paranete hyperboleon creasti, vocem quartam decimam, diapason ad septimam ac tonum ad tertiam decimam.

²⁰Vox monochordi quinta decima:

Porro si denique chordam ab octava voce duabus in partibus divisam habueris, ac ubi primus terminabitur passus, ibi quintam decimam claviculam collocaveris, nete hyperboleon habes, vocem quintam decimam philosophorum ac ultimam, diapason ad octavam, et ad quartam decimam tonum reddentem.

²¹Quid ultra dicendum? ²²Hoc ritu dividere chordam poteris aequissime de sonis in sonis per medium ac huic numero quotquot volueris addere voces totas similes, replicando diapason quotienslibet sic in infinitum.

19. (ad) quam (tertiam) *dele* H

22. (in infinitum) quam deorsum *dele* H

¹⁹The fourteenth pitch of the monochord:

After this, if, starting at the seventh pitch, you have chopped the string into two equal parts, and fixed the fourteenth key where the first section ends, you have produced the paranete hyperboleon, which is the fourteenth pitch. It forms a diapason in relation to the seventh pitch, and lies at a whole tone's distance from the thirteenth.

²⁰The fifteenth pitch of the monochord:

Next, if you have divided the string into two parts at the eighth pitch, and, where the first section ends, there placed the fifteenth key, you have the nete hyperboleon, the fifteenth and the last of the pitches classified by the philosophers; it forms a diapason with the eighth pitch, and lies at a tone's distance from the fourteenth. ²¹What more need be said? ²²In this way you will be able to divide the string into two equal halves from pitch to pitch, and to this number you can add as many entirely similar pitches as you wish by thus repeating the diapason as many times as you wish ad infinitum.

¹Capitulum nonum: ²Tonum in duo posse dividi, non aequa tamen.

³En habemus voces quindecim in monochordo per tonum ac perfectas consonantias iusta dimensione dispositas, sed parum utique vel nihil profecimus nisi tonos singulos in duo posse dividi, non tamen aequa, monstremus. ⁴Et quidem toni partes principales maius atque minus semitonium appellavi saepius.

⁵Habet namque tonus et alias partes, diesin videlicet et comma, quae, cum humana voce proferri non valeant, omittimus. ⁶Si quis autem et illa scire quae sint appetit, legat eximii doctoris Boetii musicam, verum prius arithmeticam discat. ⁷Et nunc quis nescire debeat non aequari minora maioribus?

⁸Novenarius itaque numerus ad octonarium comparatus, prout satis probatum est, omnem habet in se toni rationem. ⁹Quae proportio dividi nequit aequaliter, sicut nec omnes aliae superparticularis generis proportionales, ob quod neque tonus in aequa duo secari. ¹⁰Quod profecto Boetius in sua musica probat isto modo: prima proportio sesquioctava est si quis novem ad octo comparet, ac omnium radix sesquioctavarum inter quos numeros nullus de medio cadit alter numerus per quem eorum differentia deprehendi valeat. ¹¹Duplicentur itaque novem ex quo decem et octo resultent, sed et octo per binarium multiplicentur numerum, ut mox in sexdecim redundant. ¹²Nonne decem et octo proprie sunt ad sexdecim, sicut ante novem ad octo fuerant? ¹³Sunt plane.

1. A 13r H 17R
 2. ne *pro* non A
 3. iuxta *pro* iusta A
 8. pro ut A
 10. differentiam A
 11. et² *om* A
 et *pro* ut A

¹Chapter IX: ²The whole tone may be divided into two, but not equal, parts.*

³Well then, we have the fifteen pitches arranged on the monochord using the correct measurements, according to the tone and the perfect consonances, but certainly we have achieved little or nothing unless we show that individual tones can be divided into two parts, which are not however equal. ⁴I have quite frequently referred to the principal parts of the whole tone as the major and minor semitone, ⁵for the tone has other constituent parts—that is the diesis and the comma³⁰—but these I do not intend to discuss since they cannot be produced by the human voice. ⁶However, if anyone desires to be acquainted with their nature, let him read the *De Musica* of that famous teacher, Boethius, and first get to know his treatise on arithmetic.³¹ ⁷Now no-one should be ignorant of the fact that smaller items cannot be regarded as equal with greater. ⁸The figure nine equated with the figure eight contains within itself the entire reason for the tone's existence, as has been sufficiently proved. ⁹This ratio cannot be divided into two equal halves, and this it has in common with the other ratios of the superparticular type; for this reason, the tone cannot be split into two equal halves. ¹⁰Of this, Boethius, in his treatise on music, gives ample proof as follows:³² the first ratio the sesquioctavian, exists whenever anyone relates the figure nine to the figure eight; this is the root of all sesquioctavian ratios. Between these numbers no other number falls at the halfway point by means of which the difference between them can be appreciated. ¹¹Let us multiply nine by two, and the result will be eighteen; if we multiply eight by two, the answer is sixteen. ¹²Surely eighteen has the same relationship to sixteen as nine did to eight? ¹³This much is clear.

³⁰But see below *Pars prima* 3.2.13.*

³¹Concerning intervals smaller than the tone, see *De inst. mus.* 3.

³²The following argument follows *De inst. mus.* 1,16 (202,20-203,7).

¹⁴Cadit autem inter illos decimus septimus numerus, qui praefatam illam interruptit proportionem, nec tamen debitam partiendo conservat medietatem.

¹⁵Si namque decem et septem proprium essent inter sexdecim ac decem et octo medium, ea parte quidem qua minor numerus superatur a medio medius superaretur etiam a decem et octo.

¹⁶Nunc autem ab ipso septimo decimo numero superatur sexdecim una sexta decima, decimus septimus autem una decima septima prima superatur ab octo decimo. ¹⁷Qua quippe consequentia, maius semitonium erit inter decem et septem ex sexdecim, minus autem ab eodem decimo septimo in decem et octo.

¹⁸Maior pars est etenim una sexta decima quam una decima septima licet haec sit numerosior quam illa. ¹⁹Constat igitur ex hoc tonum aequaliter non posse dividi, quod sic in monochordo poterit optime probari.

²⁰Primus tonus monochordi divisus:

Pone sextum in tertia voce monochordi quod describimus sive compassum, et partire totam chordam in aequissimis octo passibus, quo facto mox ad eandem in qua coepisti revertere vocem. ²¹Ibique fixum rursus compassum retorque versus manum sinistram, in quo nono passu si fixeris claviculam, habebis tonum inter primam vocem et secundam divisum in duabus partibus, quarum una maior erit et altera minor, si tamen dimensio iusta fuerit. ²²In qua videlicet maiori parte resonabit apothome sive maius semitonium, per se discors et ad nihil aptum, in minori vero minus e contra musicae decus ac suavissimum; quae tamen ambo semitonia, si simul iungantur, tonum reddunt integrum.

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14. praefactam A
(tamen) de *dele* A
15. medius *in marg* H
ad *pro* a A
19. totum *pro* tonum A
20. Primus tonus monochordi divisus *in marg* A
cepisti *pro* coepisti A
21. sinixtram A
22. (iungantur) tonum *dele* A ut hic patuit *dele* H

¹⁴But between these numbers falls the number seventeen, which divides the ratio just mentioned; however, by its act of division, it does not maintain its expected 'half-way' nature. ¹⁵For if the figure seventeen truly represented the half-way point between sixteen and eighteen, the amount by which the middle number is greater than the smaller should be equal to the amount by which the figure eighteen exceeds the middle figure.

¹⁶Now the figure seventeen is greater than sixteen by the fraction of a sixteenth, and eighteen is greater than seventeen by the fraction of a seventeenth. ¹⁷It follows from this that there will be a major semitone between seventeen and sixteen, and a minor between seventeen and eighteen. ¹⁸For the fraction one sixteenth is greater than the fraction of one seventeenth, even though the latter number is greater than the former. ¹⁹From this therefore it is established that the tone cannot be divided into two equal halves—a fact which can be proved very well on the monochord as follows.

²⁰The division of the first tone on the monochord:

Place your compass on the third pitch of the monochord which I am describing, then divide the length of the string into eight equal sections. Having done this, immediately return to the same pitch with which you began. ²¹At that point, fix your compass again and move it towards the left hand side. If you establish the key on the ninth division, you will produce a tone between the first pitch and the second which is divided into two parts, of which one is the greater, and one the lesser, if the correct measurement has been made. ²²In the greater division, the apothome, or the major semitone, will sound; as an entity it is dissonant and useless. On the other hand, the minor semitone—arising as it does from the smaller division—is music's enhancement, and is a pleasant sound. If they are combined, both these semitones however make up a whole tone.

²³Nonne quaeso nonus ille passus retortus ex immobili sive naturali semitonio minori fecit tonum, et ex maiori parte quod maius semitonium est de primo monochordi diviso tono? ²⁴Stultus igitur est quicumque neget illum fixum et immobile semitonium esse minus, cui pars toni maior evidenter inseritur et resonat tonus.

²⁵Proportio sesquioctava non in duas partes aequales divisa.

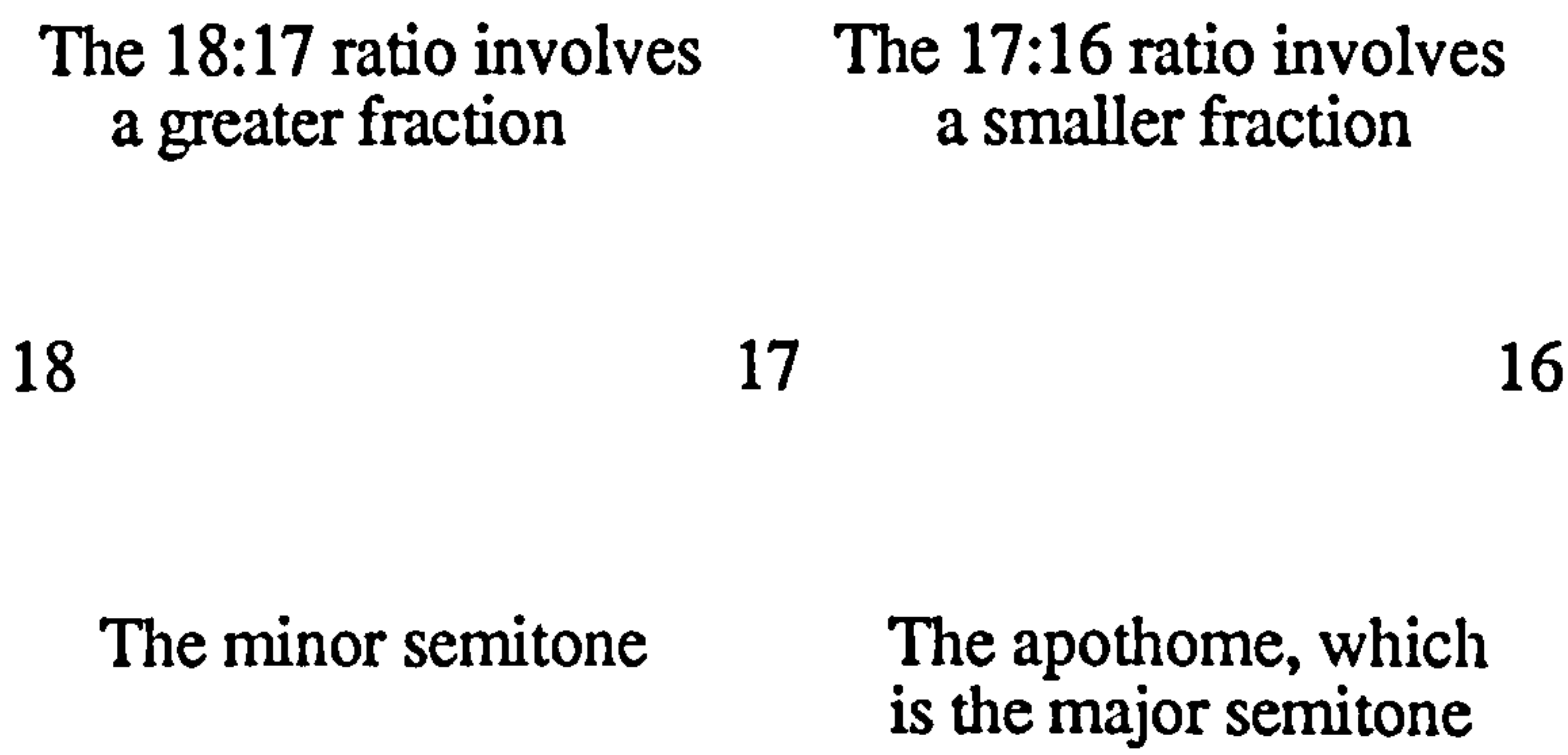
Proportio sesquidecima septima superat parte minori	Proportio sesquidecima sexta superat parte maiori	
XVIII	XVII	XVI
Minus semitonium	Apothome, quod est maius semitonium	

²⁶Tonus hic in duo sed non aequa monstratur partitus.

24. et¹ om A

²³Surely, I ask you, has not the ninth section, when moved back, produced a whole tone out of the fixed and natural minor semitone, combined with the greater part, that is, the major semitone, out of the divided first tone on the monochord? ²⁴He is a fool then who would deny that the fixed and immovable semitone is of the minor variety, when the greater part of the tone obviously has to be joined to it to produce a whole tone.

²⁵The sesquioctave ratio cannot be divided into two equal parts.



²⁶Here the whole tone is shown divided into two parts which are not equal.

¹Capitulum decimum: ²Omnes monochordi tonos dividere necessarium per minus scilicet ac maius semitonium.

³Duo quippe simul approbata videntur superiori capitulo, tonum utputa dividi per maius atque minus semitonium ad instar divisae sesquioctavae proportionis, quodque minora sint illa prorsus semitonia quibus maiora iunguntur ut inde tonus redundet. ⁴Ob quod et aliae quaedam interpositae sunt in monochordo claviculae, quas alii ficta et alii vulgo mollia nominant, nonnulli tamen verius ac magis proprie semitonia dicunt. ⁵Nil etenim aliud agunt nisi quod tonos singulos in duas partes impares dividunt, quas si dimensus fueris et unam altera maiorem aut e diverso minorem non inveneris, scito quod illud monochordum iuste non sit compartitum. ⁶Si quaeras igitur cur toni non sint omnes in ordine vocum quindecim illarum ita divisi—poterant sane philosophi per singulos tonos et alias ad dividendum interponere chordas—sic est tibi respondendum. ⁷Foret siquidem id nimis intricatum atque superfluum, praesertim cum homo vocem vivam habeat liberam et expeditam, sitque sibi perfacile quemcumque voluerit dividere tonum. ⁸Nam et illam vocem de qua tractatum est in tetrachordis non sic intricassent, si trium tonorum illorum duritiam aliter effugere potuissent. ⁹Verum quaerat ad haec lector providus quae praeire debeant in hac toni divisione semitonia, quaeve subsequi, maiora videlicet an minora; hoc enim in arbitrio dividētis est.

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|----|---------------------------------|
| 1. | A 13v H 18r |
| 2. | scilicet <i>om</i> A |
| 3. | ac <i>pro</i> atque A |
| 4. | et <i>om</i> A |
| 5. | (tonos) <i>omn dele</i> H |
| | alteram <i>pro</i> altera A |
| | istud <i>pro</i> illud A |
| 6. | (cur) sic <i>dele</i> H |
| 7. | ad <i>pro</i> id A |
| | per facile A |
| | quemque <i>pro</i> quemcumque A |
| 8. | tractum <i>pro</i> tractatum A |
| 9. | letor A |
| | quae <i>pro</i> quaeve A |

¹Chapter X: ²It is necessary to divide each whole tone on the monochord into major and minor semitones.

³Two demonstrations then clearly appear in the above chapter, namely that any whole tone is divided into major and minor semitones—a principle based on the division of the sesquioctavian ratio—and that those semitones are called ‘minor’ when a major semitone is combined with them to produce a tone. ⁴For this reason, certain other keys have been inserted in the monochord which some refer to as *ficta* pitches,³³ others use the general term ‘soft’; several people refer to them as ‘semitones’—which is a more accurate and suitable term.³⁴ For they have no other function apart from dividing individual tones into two unequal parts; if you measure these, and do not find that one semitone is greater than the other, or conversely, smaller, then realize that the monochord has not been measured out correctly. ⁶And so if you ask why all the tones in the range of fifteen pitches are not divided up in this way—clearly the philosophers were able to position other pitches between individual whole tones to divide them up—this is the reply you must get. ⁷It would prove to be too complex, and indeed superfluous, especially since mankind possesses a voice which is vital and as free as the air, and it would be easy for him to divide up any tone he wishes. ⁸For they would not have introduced such complications for the pitch we discussed in the section dealing with tetrachords, had they been able to avoid the dissonance produced by those infamous three tones in any other way. ⁹Nevertheless, let the reader who is interested in these topics enquire as to which semitones should come first in this division of the whole tone, and which second, that is, the major or minor semitones; for this decision rests entirely with the person who divides the tone.

³³Cf. Prosdocimo de’ Beldomandi, *Parvus tractatulus de modo monachordum dividendi* 3 (ed. Herlinger p. 82,1-2): Quantum vero ad positionem fide musice in monachordo est sciendum ...; also Ugolino *Declaratio* 2 p. 44.

³⁴The term *mollis* is probably taken from the *hexacordum molle*, or *b molle* (cf. below, *Pars secunda* 2.2.5). The reference to ‘others’ and ‘several people’ to whom Johannes refers in this context are not clear.

¹⁰Tonus namque sicuti per maius et minus, ita per minus et maius dividi potest.

¹¹Attamen necesse est minus praecedat, hoc est versus manum sinistram locum occupet, maius autem versus dexteram de contra mansionem habeat, et id saltem tribus de causis fiat.

¹²Utque primum de tritono sumam argumentum: si sit a chorda mese in trite synemmenon apothome maiusve semitonium, numquid errore primo peior erit nouissimus?

¹³Plus profecto dissonat apothome cum duobus tonis ultra

modum quam tres integros successive modulari tonos. ¹⁴Praeterea si

semitonium minus, ut dictum est, non praecederet, certe tetrachordum

synemmenon aut omnino non esset, aut a discordia pessima quod non erat

tolerandum inchoaret. ¹⁵Currere siquidem ut alia tetrachorda per minus

semitonium tonum et tonum illud oportebat, sicut et currit quam decenter.

¹⁶Postremo quis non videt si sic fiat, ubicumque minus est semitonium,

naturaliter ibi duo succedere sibi minora semitonia quae non modo difficillima

sunt ad enuntiandum, sed etiam integrum simul iuncta, quod peius est, reddere

nequeunt tonum? ¹⁷Verbi gratia: si sextum in secunda monochordi vocula

posueris aut compassum, totamque chordam aequissimis novem passibus

discurreris, primus passus tonum inter tertiam et quartam vocem per maius

scindit atque minus semitonium; et si sic ultra per tonos singulos procedere

velis, apothome primo tibi semper occurrit, et illud inconueniens de duobus

semitoniis minoribus non evadit.

-
14. propterea *pro* praeterea A
(semitonium) ut dictum est minus A
non *om* A
15. aut *pro* ut A
16. est minus A
modo *om* A
17. si *om* A

¹⁰The tone is capable of being divided either major, minor or minor, major.

¹¹However, the minor semitone needs to be the first—that is, it should occupy the position towards the left hand side; conversely, the major semitone should be placed to the right. This should be the case for at least three reasons.

¹²To take the first proof from the tritone: if, from the mese to the trite synemmenon there lies the distance of an apothome or major semitone, surely this new error will be more serious than the previous one? ¹³Certainly, the apothome creates a far harsher dissonance when it is irregularly joined with two whole tones than when three whole tones are played or sung in succession.

¹⁴Second, as has been said, if the minor semitone did not precede the major, without any doubt, either the hooked tetrachord would not exist at all, or would begin with a most dreadful dissonance which was not to be endured. ¹⁵Indeed, in common with the other tetrachords, this tetrachord had to progress as follows: minor semitone, tone, tone, which is what it does quite correctly.

¹⁶Finally, who is there who does not realize that, if this were the case, whenever a minor semitone occurs, naturally at that point two minor semitones will succeed each other; not only are these difficult to produce with the voice, but, what is even less desirable is that fact that when they are joined together they cannot produce a whole tone. ¹⁷For example, if you place your compass on the second pitch of the monochord, and divide the whole string into nine equal parts, the first division divides the tone's distance between the third and fourth pitches into a major and minor semitone, and if you wish to proceed further in this fashion through each individual tone, the apothome is always the first to occur, and the inconvenience of the two minor semitones does not occur.

¹⁸Quod licet incommodum certis in locis occurrat, nec sit evadendi modus, ubi tamen crebro tonum redintegrare nos oportet ob tritoni duritiam aut alia de causa, divisum non est aliquo pacto seu respectu tolerandum; et quidem apothome duplicatum toni quantitatem excedit, minus vero semitonium si geminetur ad integrum non pervenit.

¹⁹Tertius tonus divisus:

His ita praemissis, et volens et caeteros monochordi tonos per minus et maius dividere semitonium prout primum supra divisisti tonum, ab ea vocula, quae duas primas illas claviculas segregat, totam in quatuor passibus divide chordam, ut primus passus inter quartam vocem cadens et quintam, procreando diatessaron tonum illum tertium ut optabas dividat.

²⁰Quintus tonus divisus:

Quo tertio tono sicut vides per diatessaron diviso, si compassum in ea vocula quae scindit illum defixeris, ac iterum totam chordam per quatuor passus diviseris, cadens inter septimam et octavam claviculam primus compassus et perfectam diatessaron consonantiam generabit, et quintum illum tonum in minus atque maius semitonium, uti decet, secabit.

²¹Secundus tonus divisus:

A quo quinto diviso tono si binis iterum passibus tota chorda divisa fuerit, primoque retorto compassu, tertius retro passus additus tonum secundum inter claviculam tertiam et quartam identidem per diapente dividis.

19. Tertius tonus divisus *in marg* H
itaque *pro* ita A
(prout) et *dele* H
primas duas illas H
tertium *in marg* H
21. per diapente *in marg* H

¹⁸Although this inconvenience does occur in certain places, and there is no way of avoiding it, when however we often need to restore the completeness of the whole tone because of the harshness of the tritone, or for any other reason, it is a division which cannot be tolerated in any way or in any respect. Indeed, the apothome when doubled becomes greater than a tone, whilst the minor semitone when multiplied by two does not equal the whole tone.

¹⁹The third tone division:

Having taken all this into consideration, if you wish to divide the other tones on the monochord into major and minor semitones in the same way as you earlier divided the first tone,³⁵ then, starting with that little pitch which separates the first two keys, divide the whole string into four sections, so that the first division, falling between the fourth pitch and the fifth, and producing a diatessaron, divides the third tone in the way that you wished.

²⁰The fifth tone division:

Now that we have divided the third tone by means of the diatessaron, as you see, if you place your compass on that little pitch which divides it, and again divide the whole string into four sections, the first division falls between the seventh and eighth pitches, and will produce the perfect consonance of a diatessaron. It will also, as it should, dissect the tone into minor and major semitones.

²¹The second tone division:

From this division of the fifth tone, if you again divide the whole string into two sections, and move your compass back from where you first put it, the addition of a third section, going backwards always divides the second tone between the third and fourth keys by the interval of a diapente.

³⁵See above 2.9.20.

²²Quartus tonus divisus:

Iterum ab hoc secundo diviso tono totam in quatuor partire chordam, et habebis diatessaron ubi primus passus primum fecerit signum, ac inter sextam et septimam claviculam quartum tonum non aliter quam caeteri toni divisum.

²³Sextus tonus divisus:

Quibus ita peractis, iterum pone sextum in ea clavicula quae primum dividit tonum, et partire chordam aequissime per medium, ut scilicet primus passus perfectum inter octavam et nonam claviculam diapason generet, sextumque tonum illum in minus ac maius semitonium dividat.

²⁴De caetero, si vis, hoc ritu procedere potes, et quotquot tonos inveneris per minus semitonium et maius dividere chordam, utpote duobus aequissimis passibus frequenter partiendo veramque diapason de tono bipertito in tonum bipertitum procreando. ²⁵Quae quoniam discerni perfecte nequeunt nisi tantum in monochordo, nec sit possibile quidem hoc instrumentum brevi figura depingere, formam eius habes hic longam atque latam, ac in ea chordam suis in partibus optime divisam in qua, si vis, ingenium pro viribus exerce.

23. pone *om* A
 perfectum *in marg* H
 diapason *in marg* H
 25. optime *in marg* H

²²The fourth tone division:

Again, starting at this second tone division, divide the whole string into four sections; where the first section first reveals itself, there you will have a diatessaron—between the sixth and seventh keys you will have the fourth tone divided in the same way as the other whole tones.

²³The sixth tone division:

Having done this, again place your compass on that key which divides the first tone; divide the string into two equal halves so that the first division creates a perfect diapason between the eighth and ninth pitches, and the sixth tone is divided into a minor and a major semitone.

²⁴You can, if you wish, proceed in this way as far as the rest is concerned, and be able to divide all the whole tones which you encounter into minor and major semitones, that is by constantly dividing the string into two equal parts, and by creating the true diapason between one divided tone and another. ²⁵Since these divisions cannot properly be distinguished except on the monochord, and it is not possible to portray this instrument in a small diagram, you have here its shape drawn lengthwise and breadthwise; on this diagram you also have the string perfectly divided into its constituent parts—on it, if you wish, exercise your intellect as well as you can.

)

²⁶Haec est monochordi formula, verae musicae regulae, quae genus diatonicum exprimit et non alterum, in tantummodo vocibus quindecim philosophorum.

²⁷Haec inquam divisa chorda, prorsus absque fallacia, quae per passus aequissimos varie sonos discurrit, procreans ex se pulchriter tonos ac semitonia; deinde consonantiae cuiquam [qui] melodias nimis decenter ordinat, probans per arithmetica consistere veraciter in his numeris musicam, tonum in novem passibus, quatuor diatessaron, sed diapente generat primus ternorum passuum, duo tamen aequissimi passus creant diapason. ²⁸Haec has tantum creat voces dicta chorda si longa sit, si infinita similes unum replicando semper.

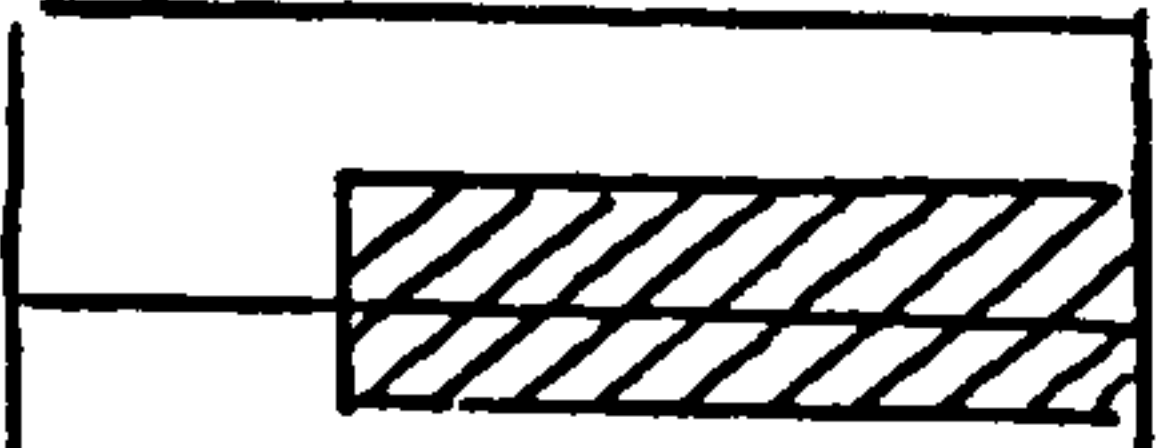

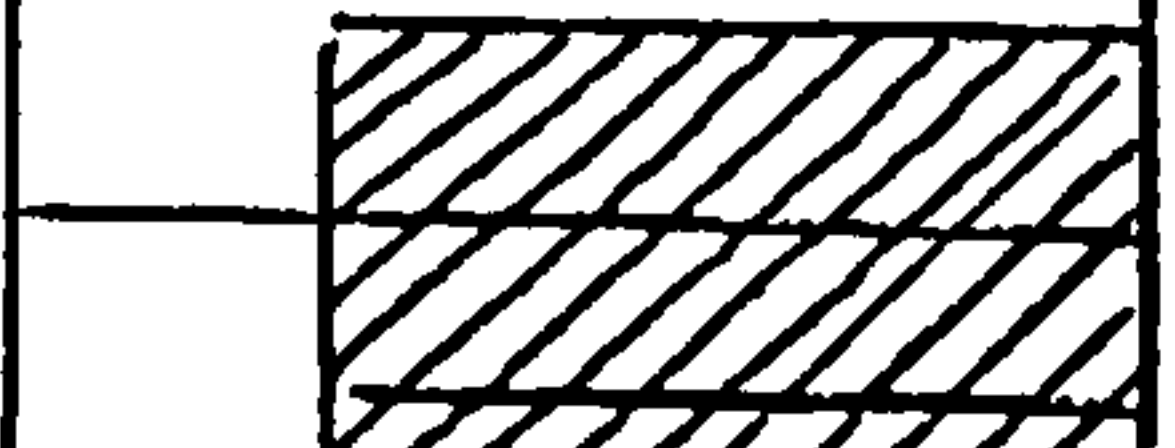

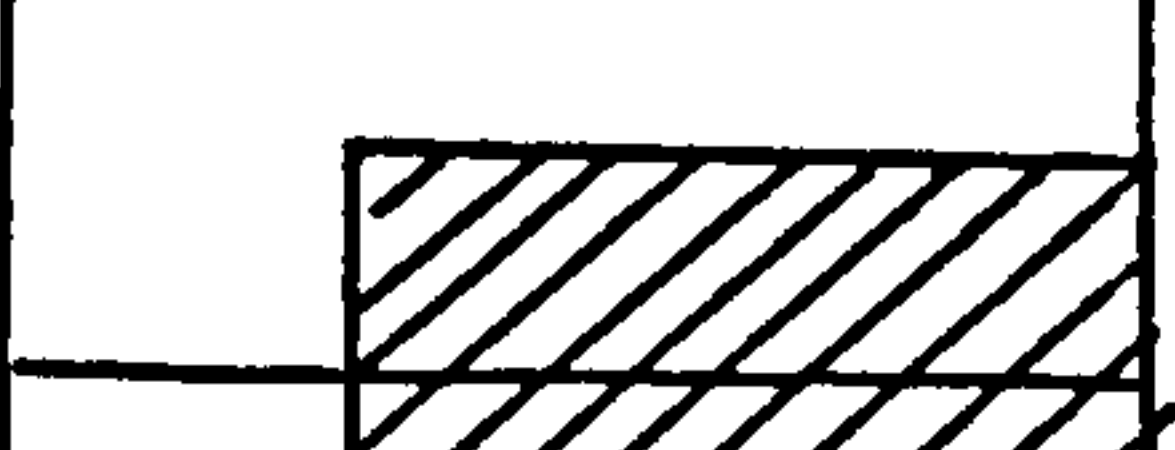
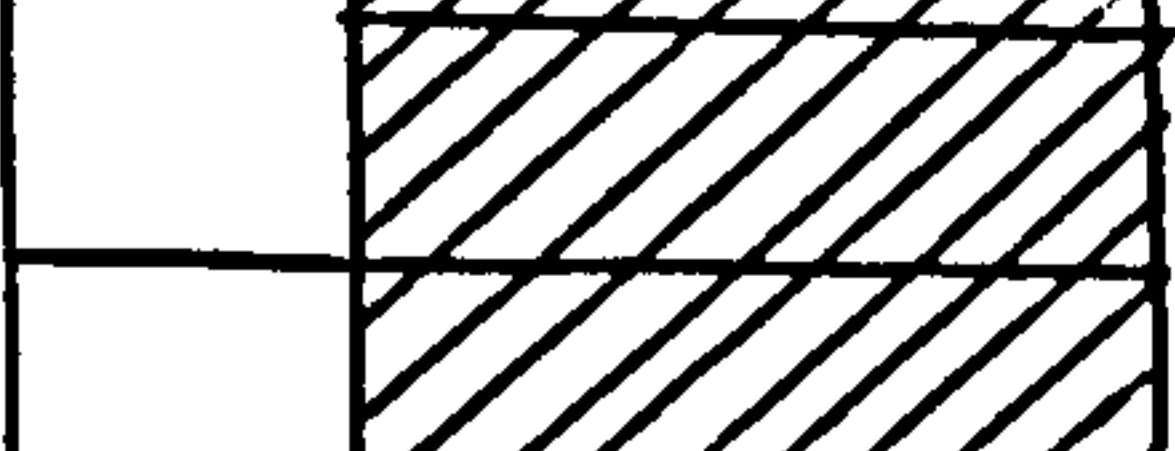

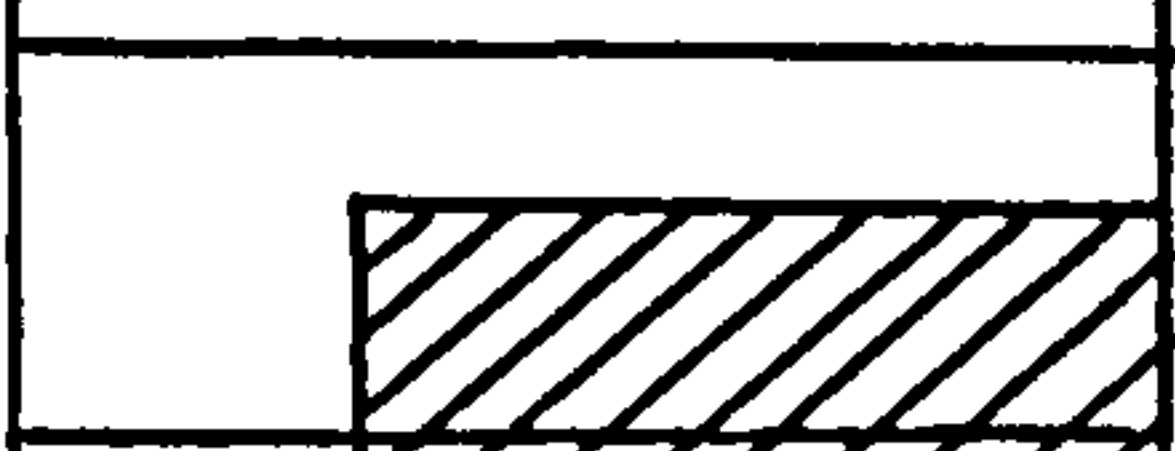
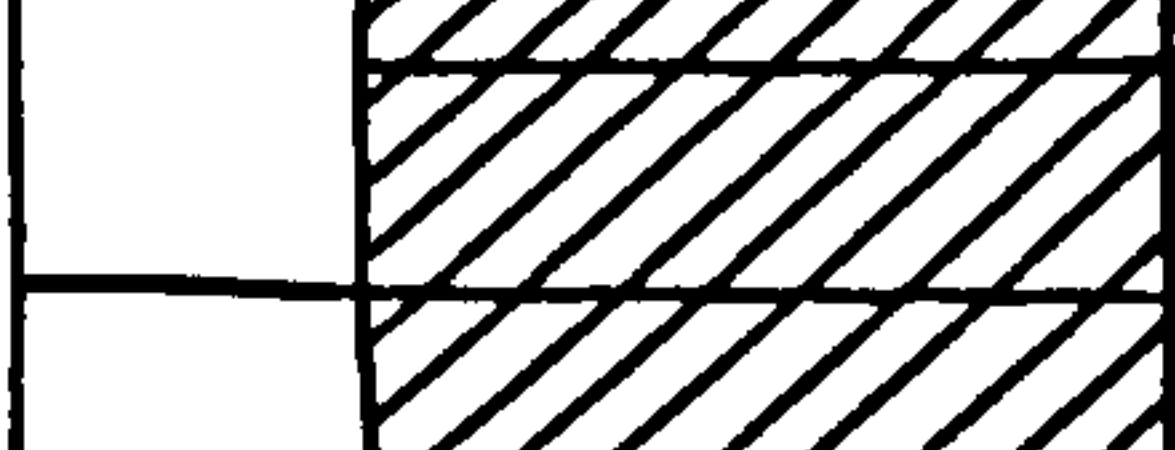

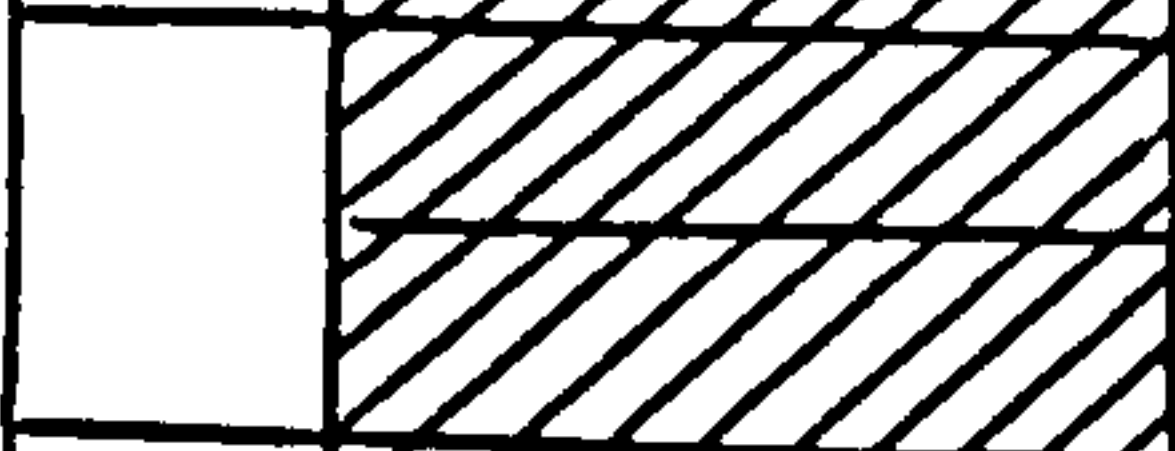




(Figura in pagina 272)

27. *divisa scripsi diversa A*
 creant scripsi creat A

²⁶Here follows a diagram of the monochord, the true measure of music. The diagram sets out the diatonic genus and none other, using only the fifteen pitches of the philosophers. ²⁷Here, may I say, is the divided string, which absolutely never deceives,³⁶ and which progresses through different pitches by means of the equal divisions, and produces beautifully from itself the tones and the semitones. Then, for any consonance it decrees the melodic form very beautifully, proving by means of arithmetic that music consists of these numbers: the whole tone in nine divisions, the diatessaron in four; but the first of the three-fold divisions produces the diapente, and the two absolutely equal divisions create the diapason. ²⁸This aforesaid string produces only these pitches, as long as it is of a certain length; if it were infinite, it would go on producing similar ones by constantly replicating each one.

(Diagram on page 272)

³⁶Cf above *Pars prima* 2.6.7: '....ita neque fallit neque fallitur'.

CAPITELLUM SINISTRUM			
	Proslambanomenos		A
	Haec vocula tonum in duo dividit**	TONUS	
	hypate hypaton		B
			(3)
	Parhypate hypaton		C
	Haec tonum dividit**	TONUS	
	Lichanos hypaton		D
	Haec tonum dividit**	TONUS	
	Hypate meson		E
			(3)
	Parhypate meson		F
	Haec tonum dividit**	TONUS	
	Lichanos meson		G
	Haec tonum dividit**	TONUS	
	Mese		A
	Haec tonum dividit**	TONUS	
	Paramese		B
			(3)
	Trite diezeugmenon		C
	Haec tonum dividit**	TONUS	
	Paranete diezeugmenon		D
	Haec tonum dividit**	TONUS	
	Nete diezeugmenon		E
			(3)
	Trite hyperboleon		F
	Haec tonum dividit**	TONUS	
	Paranete hyperboleon		G
	Haec tonum dividit**	TONUS	
	Nete hyperboleon		A
CAPITELLUM DEXTRUM			

THE LEFT HEAD

- * This minor pitch divides the tone into two parts
- (1) Semitonium minus ac mobile—the minor moveable semitone
- (2) Semitonium maius—the major semitone
- (3) Semitonium minus ac stabile—the permanent minor semitone
- ** This divides the tone

THE RIGHT HEAD

¹Capitulum undecim: ²Cur perfectarum consonantiarum aliae perfectissimae sint caeterarum.

³Occurrit hic animo, procreatis in monochordo variis consonantiis, velle paululum cur aliae tam suaviter consonent, et aliae minus rationem reddere.

⁴Nec me parva movet novitas dum quidam Marchettus nomine libellum de musica quondam ediderit, in quo Guidonem, pium monachum, ac in ecclesia Dei famosissimum suo tempore, musicum appellare non erubuit ignarus

ignorantem. ⁵Ranae quaeso taceant suis immersae paludibus, quoniam plus valuit priscorum facundia musicorum quam id totum quod excogitare posset de cantibus omnis turba nostri temporis cantorum. ⁶Garrere volens ergo

Marchettus inter musicos velut corvus crocicans inter pavos, movet quaestionem de consonantiis cur una sit suavior humanis auribus altera, nullam prorsus aliam in medium afferens huius rei causam, nisi de numeratis tantum vocibus aut

chordae divisae simul aggregatis partibus. ⁷Quod si quispiam ultra dubitet, vult quod auctor rerum inquiratur Deus; nos vero Deum in his et omnibus auctorem esse fatemur, et nihilominus in ea quam ille condidit natura causas horum

perscrutati sumus. ⁸Leva mentem itaque lector in altum, speculari primo quam sit admirabilis Deus, a quo totum istud procedit non dubium. ⁹Summa certe

Deus unitas est, summa pax, summa tranquillitas, summa dulcedo, summa suavitas, summa necnon concordia, summa iustitia, veritas et aequalitas.

-
- | | |
|----|---|
| 1. | A l6r H 20r |
| 3. | ocurit A
consonent <i>in marg</i> H
(aliae) non <i>dele</i> H |
| 4 | movit <i>pro</i> movet A
quondam <i>scripsi</i> cundam A <i>condam</i> H |
| 5. | tacent <i>pro</i> taceant A |
| 6. | humanibus auribus suavior A |
| 7. | autor A
requiratur A
horum <i>om</i> A |

¹Chapter XI: ²Why, of all the perfect consonances, some are more perfect than others.

³Now that we have created different consonances on the monochord, it occurs to me at this point that I wish to explain a little why some of these consonances sound so pleasant, while others display less of this quality. ⁴I also find it very strange why a certain person called Marchetto produced a small treatise on music, in which, in his ignorance, he was not embarrassed to refer to Guido as an uninformed musician³⁷—a man who was a devout monk, and a person who enjoyed the highest reputation in God's Church during his lifetime. ⁵Let the frogs, I say, cease their croaking, immersed as they are in their own swamps, since the eloquence of the ancient musicians carried more authority than everything which the whole crowd of present-day singers could devise in melodies. ⁶Marchetto then, wishing to prattle away amongst musicians like a raven crowing amongst peacocks, poses the question regarding consonances, why one should sound more pleasant to the human ear than another;³⁸ he did not produce any reason at all for this, other than it had to do merely with the pitches, with their numbers, or with the separate parts of the divided string brought together. ⁷But if anyone should have any further doubts, he should seek the wishes of God, the author of all things; for we, in these and in all things, confess God to be the creator, but nevertheless have examined the reasons for these things in Nature which he himself brought into being. ⁸And so, dear reader, lift your thoughts on high, first meditate on the wonder of God, from whom—and of this there is no doubt—all of this does spring. ⁹For surely God is the supreme unity, peace, tranquillity, sweetness, agreeableness, concord, justice, truth and equality.

³⁷Marchetto assumed Guido's *consonantiae vocum* to be harmonic rather than melodic intervals. See Marchetto, *Lucidarium* 9,1,12: Patet igitur ignorantia Guidonis, qui has coniunctiones, que, ut predicatur, membra consonantiarum sunt, esse consonantiarum species asserebat; cf. *Micrologus* 4,12 (p. 105): Habes itaque sex vocum consonantias ... *

³⁸See Marchetto, *Lucidarium* 6,1,2-5. See especially 6,1,3 for *amicabilem auditui*.

¹⁰Ergo si calor et ignis et omnis splendor ab ipso materiali sole, quem e nihilo fecit Deus, procedere putatur tantae concordiae suavitas a quo si non ab illo procreabitur?

¹¹Quippe cum nil aliud sit istud quam unitas et aequalitas aut aequalitatis vere quaedam per plus et minus ac unitatis propinquitas, huiusce rei ergo veritas haec est. ¹²Tota Deo similis est absque dubio diapason consonantia dulcis suavis concors hilaris et iocunda, nam in unitate quidem, uti superius probatum est, ac in aequalitate constituta. ¹³Mirum ergo si diapente minus perfecte quam diapason consonet, aut si diatessaron sit omnium debilissima consonantiarum, tonusve nullam ex se reddat gravis et acuti consonantiam? ¹⁴Nulli mirum. ¹⁵Est etenim ab ipsa diapason perfectissima consonantiarum diapente multum remota; nam si duplicetur, non solum ad illius aequitatem non pervenit, quin potius ultra transiliens perpessimam discordiam gignit. ¹⁶Diatessaron tamen diapente remotior ab aequalitate probatur, in eo quod duplicata diapason non impleat, ac in perpessimam discordiam cadat. ¹⁷De tono vero quid dicendum? ¹⁸Bis duplicatus quoque veram illam perfectionem non attingit, et si ter duplicetur discordando transcendit. ¹⁹Porro diapason motus suos habet in multiplici genere secundum arithmetica graves et acutos, quod genus utique prae caeteris quatuor inaequalitatis generibus vetustissimum est atque prius in ipsa naturali dispositione numerorum unitati comparatum, magisque per consequens aequalitati propinquum, ac omne servans semper integrum.

-
- | | |
|-----|--|
| 10. | procreabatur A |
| 11. | inaequalitatis A
huiuscemodi A
ioconda <i>pro</i> iocunda H
(quidem) ac <i>dele</i> H |
| 13 | si ² <i>om</i> A
sit <i>supra lin</i> H |
| 15. | dupliciter A |
| 16. | non <i>om</i> A
per pessimam A |
| 19. | inaequalitates A |

¹⁰Therefore if heat, fire, and all splendour is thought to come from sun made of matter, which God created from nothing, from whom will spring the sweetness of all this harmony if not from Him?

¹¹In fact, since this harmony is nothing else but unity and equality, or else possesses an affinity with these qualities by adding or subtracting, this then is the truth of the matter. ¹²The consonance of the diapason without any doubt is made totally in the image of God: it is sweet, pleasant, harmonious, joyful and agreeable, for unity and equality are in its makeup, as I have previously shown to be the case. ¹³Is it strange then that the diapente produces less of a perfect consonance than the diapason, that the diatessaron is the weakest of the consonances, that the tone produces no consonance between the low and high pitch? ¹⁴Of course it is not. ¹⁵For the diapente is far removed from the diapason, which is the most perfect of consonances, because if it is doubled, not only does it not equate with the equality of the diapason, but, by creating a larger interval, it also produces a dreadful dissonance. ¹⁶The diatessaron is shown to be further removed from equality than the diapente because when it is doubled, it produces an interval smaller than the diapason, and falls into the dreadful trap of an unspeakable dissonance. ¹⁷What must we in fact say about the tone? ¹⁸If it is doubled it does not attain that true perfection, and if it is trebled it goes beyond it by creating a dissonance. ¹⁹Moreover, the diapason has its movements between its high and low pitches based upon the multiple genus according to arithmetical law; this genus assuredly is the oldest compared to the other four types of inequality, and previous to them in its natural structure in relation to the unity, and therefore has a closer affinity with equality; it always keeps everything as an integer.

²⁰Dupla namque proportio, per quam primum binarius unitati comparatur, et in qua, prout satis ostensum est, haec ipsa resonat consonantia, quid aliud quam duplicatum unum eidemque rursus unitati comparatum? ²¹Nil partitur genus istud nilque scindit, nihil sibi deest unquam nihilve superfluit, ac ideo summam harmoniam in sonis reddit.

²²Quemadmodum in arithmetica caeteri numeri quanto magis ab hac multiplicitate fuerint alieni tanto sunt ab unitate remotiores, ac inter se per consequens plus dissentiunt simul comparati, sic et eae consonantiae quae non in multiplici genere cadunt tam integras tamque suaves emittere nequeunt voces, eo quod ut illi sunt ab unitate remoti nec minus hae sunt ab aequalitate distantes.

²³Hinc est quod diapente non sicut diapason aequisonare depraehenditur, ac diatessaron minus quam diapente consonat, tonus vero nihil per se consonum habet. ²⁴Cadit siquidem diapente, sicuti probatum est, in sesquialtera proportione, quae prima scitur omnium superparticularium ac unitati propior, ita quod si duplicetur duplam superet. ²⁵At diatessaron in sesquitertia consonat quae secundum inter superparticulares proportionales locum habens quanto sesquialtera ulterior tanto fit ab unitate remotior, nam si duplicata fuerit ad duplam proportionem non pervenit. ²⁶Tonus autem in proportione sesquioctava resonat, quae locum octavum in ordine superparticulari tenens in tantum ab unitate remota probatur, ut nec quincuplata quidem ad duplam attingat.

-
20. compatur A
versus *pro* rursus A
22. (cadunt) non *dele* H
23. Hic *pro* Hinc A
per se *in marg* H
24. itaque *pro* ita quod A
25. (tanto) quidem *dele* H
26. (superparticulari) tenens in tantum usque ad sesquial(teram)
(*Pars prima* 2.12.12.) *om* H
attinguat *emend* A

²⁰The duple ratio, by means of which, first of all, the figure two is related to one, and within which, as has been pointed out often enough, this very consonance itself is sounded, what else can it be but the figure one multiplied by two, and related back to the very same one? This genus is in no way divided, nor does it divide. ²¹Nothing is lacking to it, and nothing is superfluous. For this reason, it produces the most perfect harmony in its sounds.

²²Just as in arithmetic the more distant the other numbers are from this type of multiplication, the more distant they are from unity, and as a consequence are more incompatible with each other when they are compared, so those consonances which do not fall within the multiple genus are not capable of producing such pure and pleasant sounds because they are far removed from equality, in the same way that those numbers are alien to the nature of unity.³⁹

²³This is why we find the diapente not as equison as the diapason; the diatessaron is less equison than the diapente, and the whole tone contains no consonance at all within itself. ²⁴The diapente indeed, as has been previously made clear, falls within the 3:2 ratio, which is known to be the first among the superparticular ratios and more closely related to unity in so far as, if it is multiplied by two, it then becomes larger than the duple ratio. ²⁵But the diatessaron is a consonance which relates to the 4:3 ratio, which ranks second among the superparticular ratios; it is all the further removed from unity as it is from the 3:2 ratio, for if it is multiplied by two, it does not then equal the duple ratio. ²⁶The production of the whole tone depends upon the 9:8 ratio; it occupies the eighth position in the superparticular order, and to such an extent is found to be distant from unity that, even though it be multiplied five times it would not equal the duple ratio.

³⁹Cf. *De inst. mus.* 1,5.

²⁷Quid sit vero genus multiplex, et quid superparticulare qui praecedentia legerit non debet ignorare. ²⁸Si qua tamen alia sunt musicalis harmoniae modulamina, nec in multiplici cadunt nec in superparticulari, sed in aliis ultra modum ab unitate remotis generibus concordantia seu discordantia.

²⁷No-one who has read the foregoing should be unaware of the nature of either the multiple or the superparticular genus. ²⁸However if other progressions of musical patterns exist, they fall neither into the multiple nor into the superparticular category, but are concordant or discordant within other genera excessively remote from unity.

¹Capitulum duodecimum: ²Cur omnium dissonantiarum aliae sint auditui compassibiles, aliae vero non.

³De dissonantiis autem illis quae, quamvis chordam ut illae perfectae consonantiae metiri nequeant, suspensam nihilominus quandam generare solent humanis auribus consonando satisque compassibilem harmoniam, dico faciliter id illis contingere sonis ob innatam affinitatem quam cum perfectis ac sibi propinquioribus habent consonantiis, nec non cum aequalitate per consequens et multiplicibus numeris. ⁴Qua quidem affinitate veraciter accidit ut duo toni copulati vel tonus cum semitonio minori consonent, quamquam non perfecte, ita quod ditonus ad perfectam diapente per tonum et minus semitonium pergat consonantiam, semiditonus vero per tonum et tonum, non aliter quam tonus cum diapente vel semitonium cum diapente pergunt ad optimam diapason, et sic de multis.

⁵Nec mirum, scimus enim duas in arithmetica sesquioctavas proportionales paucis desuper adiectis numeris mox in sesquiterciam concrecere proportionem, unamque rursus additam sursum aut deorsum sesquioctavam nec minus gignere sesquialteram, licet ab extremis illarum duarum sesquioctavarum numeris simul comparatis, genus superpartiens probetur inductum. ⁶Exempli gratia: numerus CXCII et numerus CCXVI et numerus CCXLIII duas complectuntur sesquioctavas proportionales, quibus ducentis quadraginta tribus si parvum numerum adiungas istum, hoc est tredecim (XIII), habes CCLVI numerum qui sesquiterciam proportionem facit ad primum CXCII propositum.

1. A 16v
4. duo scripsi dico A.

1Chapter XII: 2Why, of all the dissonances, some are compatible⁴⁰ to the ear, while others are not.

3And now, to turn to the matter of those dissonances which, though they are not able to measure the string in the way that the perfect consonances are able to do, nevertheless usually produce a kind of unresolved harmony which is consonant and perfectly compatible to human ears: my claim is that this easily comes about for those sounds because of the natural affinity they have with the perfect consonances which are closer to them, and consequently also with equality and the multiple numbers. 4Because of this affinity it actually does come about that the combination of two tones, or of a tone and minor semitone, creates a consonance, though not a perfect one, in so far as the ditone develops into the perfect consonance of a diapente by the addition of a whole tone and minor semitone, while the semiditone reaches this consonance by means of two whole tones. In exactly the same way, the diapente plus tone or minor semitone progress to the most perfect of consonances, the diapason. The same applies to many intervals.

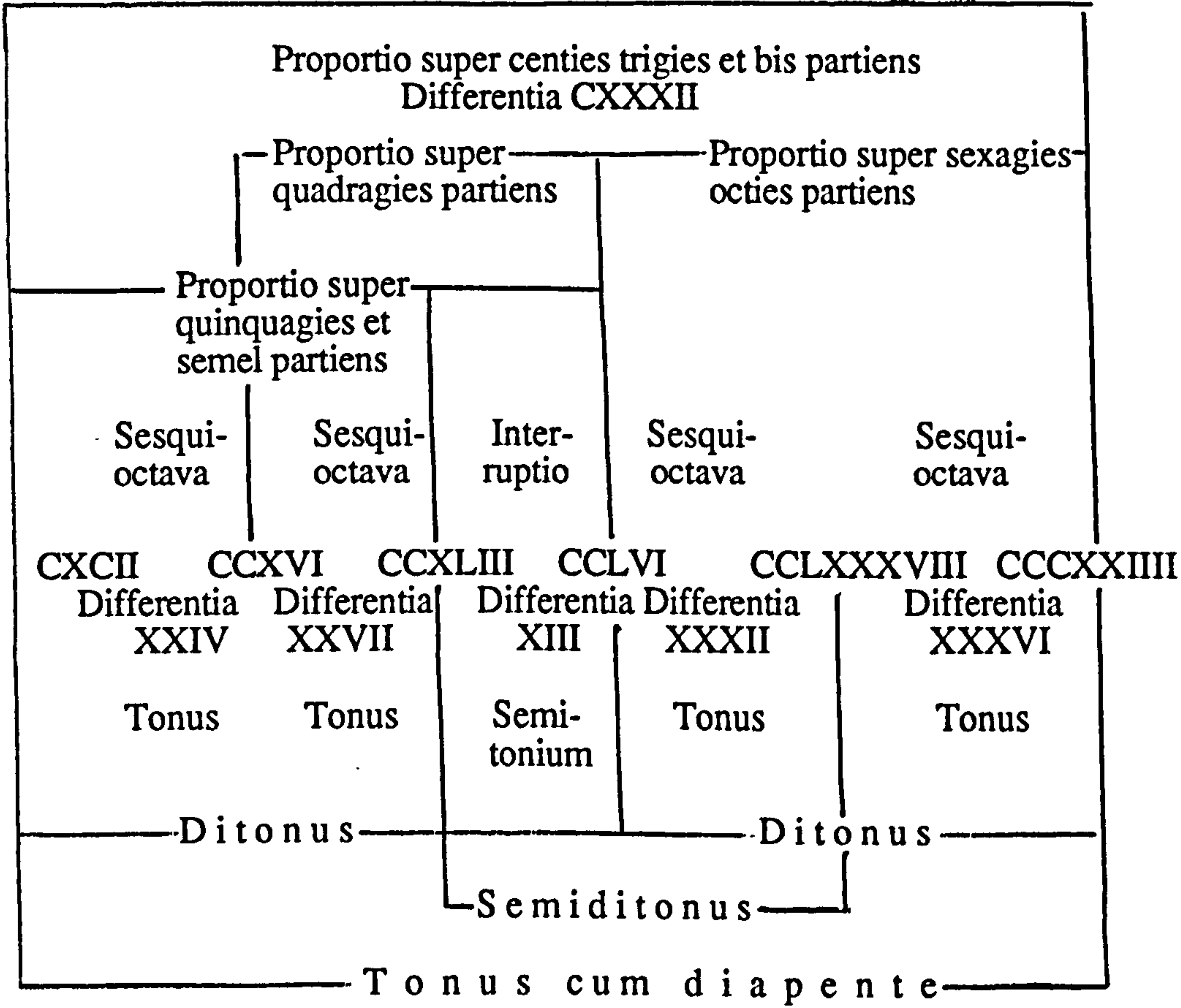
5This is not surprising, for we know that in arithmetic two 9:8 ratios soon come to equal the 4:3 ratio when a few numbers are added to them; again, if one more 9:8 ratio is added above or below, it no less produces the 3:2 ratio, even though the superpartient genus is shown to have been produced from the outer numbers of these two 9:8 ratios when compared to each other. 6For example, the numbers 192, 216 and 243 embrace two 9:8 ratios; if to the number 243 you add a small number, that is the number 13, you arrive at the number 256: this number, when related to the first one, 192, produces the 4:3 ratio.

⁴⁰Concerning 'compatibility' (*compassibilis*) of certain dissonances, see Marchetto, *Lucidarium* 5,2,7-11.

⁷Cui numero CCLVI si triginta duas addideris unitates surgit repente CCLXXXVIII numerus qui comparatus ad numeros CCLVI et CCXLIII duas nequaquam implet sesquioctavas, etsi vere, sesquialteram ad primum numerum CXCII expleat proportionem.

⁸Attamen si dicto numero CCLXXXVIII triginta sex adieceris ad numerum CCXLIII procreasti sesquitertiam. ⁹Pro quo facilius memoriae commendando talem necesse est fieri descriptionem:

¹⁰Hic apparet evidenter cur quaedam dissonantiae consonent et non aliae, curque chordam non dividant certis quibusdam passibus ut verae consonantiae.

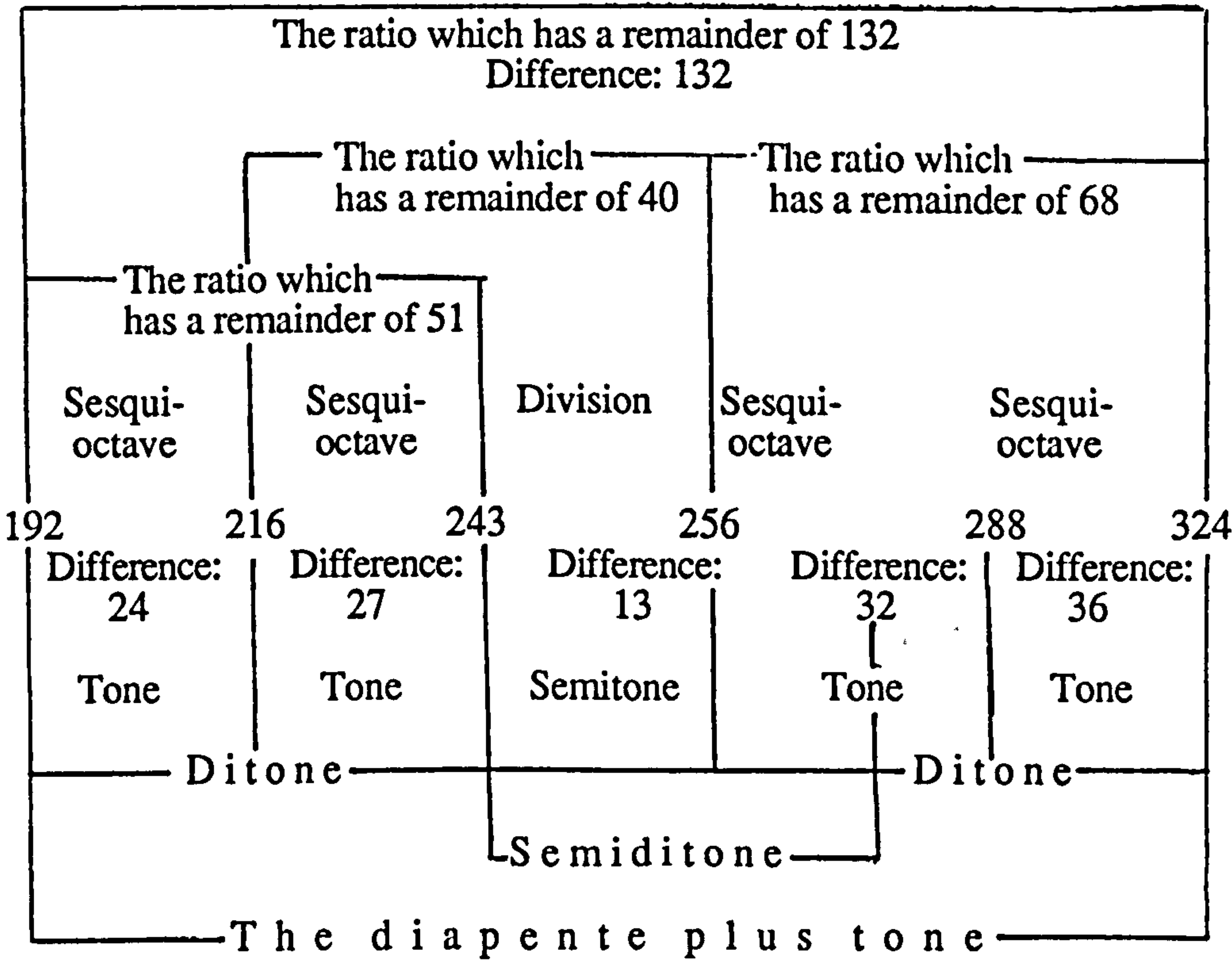


10. apparet *scripsi* apperet A

⁷If to the number 256 you add the number 32, all of a sudden the number 288 appears. When this number is related to the numbers 256 and 243, in no way does it add up to two 9:8 ratios, even though it actually creates the 3:2 ratio in relation to the first number 192.

⁸However, if to the number 288 previously mentioned you add 36 and relate the total to the number 243, you have then produced the 4:3 ratio. ⁹So that this fact can be committed to memory more easily, I find it necessary to provide a diagram as follows:

¹⁰The following provides clear evidence why some dissonances are harmonious, while others are not; why they do not divide the string in clearly defined sections, in common with the true consonances.



¹¹Patet in istis sex numeris, quos dote naturali tales opus instituit, eas dissonantias, quae cum tono sursum et tono deorsum, aut ex tono minorique semitono tam sursum quam deorsum, ad perfectas attingere solent consonantias, patet inquam illas in superscriptis numerorum cadere proportionibus, quae cum una sursum sesquioctava et una deorsum, aut ex una iterum sesquioctava cum interruptione numerorum parvula tam sursum quam deorsum, ad optima perveniunt aequalitatis duo prima genera, propter quod et quandam auribus nostris ingerunt modulationis suavitatem. ¹²Nam si proportionem illam super quadragies partientem quae cadit a numero CCXVI in numerum CCLVI consideres, ipsa transit ad sesquialteram mirabiliter una sibi data sesquioctava superius et una inferius, eo ritu quo semiditonus per tonum ac tonum pergit ad diapente perfectum in musica. ¹³Verum quia primus illorum numerus CXCII nonam non habet partem, ac consequenter sub se non recipit sesquioctavam, multiplicetur per novenarium tam ipse quam sui sequaces ut numeri fiant maiores eademque proportionalitas permaneat. ¹⁴Quo facto nona pars eius numeri primi procreati MDCCXXVIII scilicet auferatur, quae quidem erit CXCII numerus primo sicuti dictum est multiplicatus, isque numerus qui residuus est MDXXXVI videlicet superscripto primo magno numero supponatur. ¹⁵Hic siquidem numerus primus erit ex primo de sex illis per novem multiplicatis hoc modo genitus, ac illi per sesquioctavam proportionem appositus, quo duplicato surget ex eo duplus alter numerus, qui locum octavum in hac descriptione tenebit MMMLXXII factus, inter quos duos utique sex illi sic multiplicati cadent, ut hic patet per ordinem.

13. nonarium A
 14. scilicet *in marg* H
 15. erit *in marg* H
 hoc modo *in marg* H
 de (quo) A

¹¹In these six numbers, which my treatise has established to be such because of their natural properties, those dissonances exist which normally relate to the perfect consonances, with the addition of a tone either above or below, or else a tone plus minor semitone above or below. It is evident, I say, that these fall within the numerical ratios mentioned above if these are combined with a 9:8 ratio above and below, or again with a 9:8 ratio combined with a tiny section of numbers both above and below, they come to equal the two prime genera of equality, and it is because of this that they also produce musical sounds which are acceptable to our ears. ¹²For if you consider that ratio which has a remainder of forty and which involves the numbers 216 and 256, this remarkably develops into a 3:2 ratio when a 9:8 is added above and below it, in the same way as the semitone in music progresses through two whole tones to become a perfect diapente. ¹³However, because the first of these numbers—192—cannot be divided by nine, and cannot accommodate the 9:8 ratio, it should be multiplied by nine together with the numbers which follow; the numbers then become correspondingly larger, but the proportion⁴¹ remains the same.

¹⁴Having done this, a ninth of this first number which has been produced—that is, 1728—should be subtracted from it: this fraction will be the number 192, and the number first multiplied as I have said. The number remaining is 1536, and should be placed underneath the first large number written above. ¹⁵This first number then will be generated like this—from the first of those six numbers multiplied by nine—and related to the other one in the 9:8 ratio. When this other number is doubled, there will appear another number of twice the amount—the number 3072—which occupies the eighth place in the following diagram. In between these outer numbers will fall the other six numbers, multiplied in the same way by 8:9, as is made clear now in due order.

⁴¹"proportion' is the translation of the Latin *proportionalitas*, which is the word Boethius uses to describe 'a collection of equal ratios', eg 1 2 4 8 16, and see *De inst. mus.* 2,12 (241,18-19): 'Proportionalitas est aequarum proportionum collectio'. See also Bower/Boethius p. 65, n. 34.

P R O P O R T I O D U P L A						
Sesqui octava	Sesqui octava	Sesqui octava	Inter- ruptio	Sesqui octava	Sesqui octava	Inter- ruptio
MDXXXVI MDCCXX MDCCCCXL MMCLXXX MMCCCIII MMDXCII MMDCCCC MMMLXXII						
V11		11111		V11		
Tonus	Tonus	Tonus	Semito- nium minus	Tonus	Tonus	Semito- nium minus
————— Diapente —————						
————— D I A P A S O N —————						

16In sex illis itaque numeris, e quibus hi octo producti sunt, patuit evidenter semiditonum eo compassibilem auditui praeberere concordiam, quo super quadragies partiens proportio singulas ex utraque parte suscipiens sesquioctavas, cadit in sesquialteram aequalitati satis vicinam. 17Hic vero ditonus indaganti subtiliter in tantum apparebit dissonantia semiditono compassibilior in quantum proportio super quinquagies et semel partiens comprobatur sesquialterae propinquior, et tonus cum diapente tanto suavior semitonio cum diapente credi poterit, quanto super centies trigies et bis partiens proportio scitur aequissimae duplae vicinior. 18Patet quoque tam in illis numeris quam in istis praefatum Marchettum legisse Boetii musicam, non tamen intellexisse. 19Dicit enim maius semitonium in proportionem sesquiseptima decima consistere, et minus in sesquiseptima decima, quod Boetius in primo libro suae musicae, capitulo septimodecimo, negat aperte.

16. producti A
 (super)coties *dele* H
17. (semitditono) *supra lin* H semitono *pro* semiditono A
18. perfatum A

T H E D U P L E R A T I O							
Sesqui octave	Sesqui octave	Sesqui octave	Division	Sesqui octave	Sesqui octave	Division	
1536	1728	1944	2187	2304	2592	2916	3072
Tone	Tone	Tone	Minor Semi-tone	Tone	Tone	Minor Semi-tone	
→ Diapente →							
D I A P A S O N							

¹⁶And so, it is clear that in the previous six numbers, out of which arise these eight, the semiditone provides a consonance which is compatible to the ear because of the fact that the ratio which involves a remainder of forty, in taking individual 9:8 ratios on each side, falls into the 3:2 ratio which is sufficiently close to equality. ¹⁷This ditone will appear to the enquiring mind as a dissonance more compatible than the semiditone in so far as the ratio which involves a remainder of 51 is found to be more closely related to the 3:2 ratio; further, the diapente plus tone can be believed to be a more pleasant sound than the diapente plus semitone, to the same extent that the ratio which involves a remainder of 132 is more closely related to the most equal duple ratio 2:1. ¹⁸As far as both sets of numbers are concerned, it is also clear that the aforementioned Marchetto had read the *De Musica* of Boethius, but had not understood him. ¹⁹For Marchetto claims that the major semitone consists of the 17:16 ratio, whilst the minor semitone involves the 18:17 ratio;⁴² this statement Boethius categorically denies in the seventeenth chapter of his first book.⁴³

⁴²Marchetto (*Lucidarium* 4.11.4) bases his argument on Boethius's arithmetical proofs that the 9:8 ratio cannot be equally divided (*De inst. mus.* 1,16 and 3,1). Boethius does, in fact, refer to the ratios 17:16 and 18:17 as major and minor semitones (1,16 203,10): Sed inter haec unum maius semitonium nuncupatur, aliud minus.

⁴³*De inst. mus.* 1,17 actually argues that the ratio 256:243 represents the minor semitone, as sentence 22 below clearly states.

²⁰Nam si sic esset ut partes toni determinatas in superparticulari genere sibi vendicarent, profecto certas etiam in dimensione chordae mensuras haberent veluti diapente diatessaron atque tonus habent. ²¹Nunc autem ullam habere nequeunt in chorda quae sunt huiusmodi propter perfectos musicae motus certam dimensionem, ex quo patet quod nec certam habeant in numeris seu determinatam proportionem. ²²Vis videre? Boetius in allegato parum ante libro et capitulo probat in his primis numeris esse minus semitonium, hoc est inter CCXLIII et CCLVI simul comparatos. ²³Sed quia primus duorum octavam partem non habet, ambo multiplicentur per octonarium, et fiant numeri MDCCCCXLIII et MMXLVIII, qui minus inter se tenent adhuc semitonium, additaque primo numero parte sui octava CCXLIII scilicet, oriatur tertius numerus MMCLXXXVII in proportionem sesquioctava.

²⁴Quid ad haec Marchettista contradicere valet? ²⁵Si primus horum trium numerorum et secundus, natura teste, minus habent semitonium, et primus ad tertium in sesquioctava contineat tonum, nonne medius ad ultimum apothomen reddit, quod est maius semitonium?

-
20. iudicarent *pro* vendicarent A
certus A
21. illam *pro* ullam A
23. adhuc tenent inter se A
numero *supra lin* H
scilicet *om* A
(oriatur) a *del* H
(ter)tius *supra lin* H
25. apothomen *scripsi* apothome HA

²⁰For if it were the case that the divisions of the tone claimed for themselves fixed measurements, then surely they would have clear and defined measurements on the measured length of the string in the same way as the diapente, the diatessaron and the whole tone. ²¹But as it is, parts of this sort cannot possess a set measurement on the string because of the perfect progressions of music, and from this fact it is clear that they do not have fixed or established ratio in number either. ²²Do you wish to witness this? Boethius, in the book and chapter which I have just recently mentioned,⁴⁴ proves that the minor semitone lies in the relationship between the following numbers—243 and 256—when they are set with each other. ²³But because the first of these numbers does not have a fraction of an eighth, both numbers should be multiplied by eight to produce the numbers 1944 and 2048. Between them they still contain the minor semitone, and if an eighth of the first number is added on to the first number, that is, 243, a third number, 2187, should result, together with the 9:8 ratio.⁴⁵

²⁴How can poor little Marchetto contradict these arguments? ²⁵If, on the evidence of Nature, the first and second of these three numbers contain the minor semitone, and the first and the third contain a tone in the 9:8 ratio, then surely the middle and the last produce an apothome, which is the major semitone?

⁴⁴See above sentence 19.

⁴⁵Boethius develops these numbers (2448:2187) as the ratio of the major semitone (apotome) in *De inst. mus.* 2,30.

26Quod sic demonstrandum est: sit A primus numerus, B secundus et C tertius; cum ergo sit A B minus semitonium, non tam attestante Boetio quam et ipsa natura dictante, sitque rursum A C tonus per sesquioctavam exquisitus, oportet omnino fieri de B C semitonium maius. 27Nunc autem numerus A cum numero B non producit genus superparticulare sed superpartiens, iterumque numerus B cum numero C similiter, ob quod falso liquet Marchettum scripsisse, B namque numerus A numerum excedit centum et quatuor unitatibus, rursusque B numerum C numerus centum ac triginta novem exuberat, quas quippe differentias CIII aut CXXXVIII si per decem et septem multiplices, vel per decem et octo, nunquam ad summam numeri B vel numeri C pervenire vales.

Proportio super centies et quater partiens		Proportio super centies trigies novies partiens	
A	B	C	
MDCCCCXLIII	MMXLVIII	MMCLXXXVII	
Differentia CIII		Differentia CXXXVIII	
Semitonium minus		Apothome quod est semitonium maius	

26. et^l om A
27. omnino in marg H
(exuberat) ex dele H
numeri om A

²⁶The demonstration for this should be as follows: let the letter A represent the first number, B the second, and C the third. Since then AB is a minor semitone (not so much according to what Boethius claims to be the case, but on the evidence of Nature itself), and further since AC is regarded as being a tone obtained through the 9:8 ratio, then assuredly BC must produce a major semitone. ²⁷Now the combination of A and B produces the superpartient, not the superparticular genus, likewise B when combined with C. For this reason, it is clear that what Marchetto wrote is wrong, for B exceeds A by the sum of 104; C is greater than B by 139. If you multiply these differences by seventeen or eighteen, you can never arrive at the total of either B or C.

The ratio which has a remainder of 104		The ratio which has a remainder of 39	
A	B	C	
1944	2048	2187	
Difference: 104		Difference: 139	
Minor semitone		The apothome, which is the major semitone	

²⁸Haec naturae secreta Marchettus si cognovisset, absque dubio tam enormiter a tramite veritatis non deviasset. ²⁹Legit quidem haec in Boetio, sicut dixi, sed non intellexit, et hoc quia nescivit arithmeticam, id est numerorum scientia.

³⁰Cui scientiae totam ostendere volens artem sonorum esse subditam, en dispersa superius tetrachorda simul hic in unum aggrego, tot quippe numeros ab antiquis philosophis exquisitos illis apponens quot chordas habere videntur sive voces; qui non aliam invicem comparati sortiuntur concordiam numerando quam illae copulatae voces in cantando.

(Figura in pagina 296)

²⁸Had Marchetto been aware of these natural secrets, assuredly he would not have erred so dreadfully from the path of truth. ²⁹As I have said, he read these topics in Boethius but did not understand them, the reason for this being that he was not conversant with arithmetic, which is the science of number. ³⁰Because of my wish to demonstrate that the art of sounds is totally subservient to this science, behold, here I bring together onto one diagram the tetrachords previously scattered in different parts of the text; I have also placed beside them the numbers discovered by the ancient philosophers—as many as seem to possess notes or pitches. These numbers, when they are placed in due order, produce the same harmony by their numerical processes as do those combinations of pitches in singing.

(Diagram on page 297)

FIGURA GENERALIS ET COLLECTIO VOCUM

Hos exquisitos numeros disce per arithmeticos si quid habet cum numeris scire cupis ars de sonis, nam eandem concordiam servant simul numerando quam et soni copulati melodias concinendo.

MMCCC1111	Nete hyperboleon	Tonus	Illud solum tetrachordum Graeci vocant synemmenon. Hoc est vocum coniunctarum Quod cum mese conectitur Ob tantummodo tritonum MMMCCCCLV1 Nete synemmenon	Tonus
MMDXCII	Paranete hyperboleon	Tonus	Tetrachordum hyperboleon, id est excellentium vel superiorum	
MMDCCOCXVI	Trite hyperboleon	Semitonium minus		
MMMLXX11	Nete diezeugmenon	Tonus	Tetrachordum diezeugmenon id est disiunctarum	
MMMCCCCLV1	Paranete diezeugmenon	Tonus		
MMMDCCCL XXXV111	Trite diezeugmenon			Tonus Semitonium minus
MMMMXCVI	Paramese	Semitonium minus		
MMMMDCV 111	MESE	Tonus	Disiunctio	
VCLXXX1111	Lichanos meson	Tonus	Tetrachordum meson id est mediarum	MMMMDCV111 MESE Si quis primum hunc divisum Cupit agnoscere tonum Hoc sic digne separatum Investiget tetrachordum
VDCCCXX11	Parhypate meson	Tonus		
V1CXL1111	Hypate meson	Semitonium minus		
VDCCCCX11	Lichanos hypaton	Tonus	Tetrachordum hypaton id est gravissimarum	
V11DCCLXX VI	Parhypate hypaton	Tonus		
V111CXCI1	Hypate hypaton	Semitonium minus		
V1111CCXVI	Proslambanomenos			

EXPLICIT LIBER SECUNDUS

A COMPREHENSIVE DIAGRAM TOGETHER WITH A TRANSLATION OF THE PITCHES
By means of these choice arithmetical numbers, learn, if you want to know, whether the art of sounds has anything in common with numbers, for these preserve the same concord through their arithmetical processes as interrelated sounds do in their creation of melodies.

2304	Nete hyperboleon	Tone	The hyperboleon tetrachord, that is, of the excellent or upper pitches	This tetrachord alone the Greeks called synemmenon, that is, of the conjunct notes. This is connected to the mese only on account of the tritone.
2592	Paranete hyperboleon	Tone		
2916	Trite hyperboleon	Minor semitone		
3072	Nete diezeugmenon	Tone	The diezeugmenon tetrachord, that is, of the disjunct pitches	3456 Nete synemmenon Tone
3456	Paranete diezeugmenon	Tone		3888 Paranete synemmenon Tone
3888	Trite diezeugmenon	Minor semitone		4374 Tritone synemmenon Minor semitone
4096	Paramese	Tone	the disjunction	4608 MESE
4608	MESE	Tone		
5184	Lichanos meson	Tone		
5832	Parhypate meson	Minor semitone	The meson tetrachord, that is, of the middle notes.	If anyone wishes first to understand this division of the tone, let him examine this tetrachord which is properly disjoined.
6144	Hypate meson	Tone		
6912	Lichanos hypaton	Tone		
7776	Parhypate hypaton	Minor semitone	The hypaton tetrachord, that is, of the lowest notes.	
8192	Hypate hypaton	Tone		
9216	Proslambanomenos			

¹INCIPIT LIBER TERTIUS

²Capitulum primum: ³Secundum modulandi genus enarmonicum.

⁴His ita rite peractis, ac quindecim philosophorum chordis in unum collectis et in solo diatonico genere dispositis, ad tonos tropos sive modos arbitror festinandum, in quibus utique tota quam tractare promisi superius consistit huius artis practica. ⁵Declaratis prius videlicet aliis duobus modulandi generibus, quae quid sint aut unquam fuerint etsi totaliter Marchettus ignoraverit, velle tria tamen distinguere contra naturam semitonia iuxta triplex modulandi genus non erubuit. ⁶Legerat enim in musica Boetii de tribus generibus melorum, et putavit esse vocabula tetrachordorum nomina trium semitoniorum. ⁷Ubi precor a saeculo fuit auditum praeter a Marchetto semitonium diatonicum enarmonicum et chromaticum? ⁸In eo siquidem genere de quo nunc usque tractavimus, tetrachorda currunt per minus semitonium tonum et tonum, prout in illa generali figura videri potest expressum. ⁹Ob quod diatonicum genus appellatum est. ¹⁰Istud autem, de quo saltem aliquid in medium efferre delibero, minus illud semitonium in duas partes aequales apud priscos Graecos secabat, quas dieses vocitaverunt quasi scissuras aut divisiones. ¹¹In quo scilicet genere tetrachorda per diesin et diesin et ditonum incedebant in uno intervallo positum, ita quod ab hypate hypaton esset semper diesis in parhypate hypaton, et ab illa diesis in lichanos hypaton similiter,

1. A 18v H 22v
 5. vel *pro* velle A
 6. tribus *supra lin* H
 puta *pro* putavit A
 de Libro A
 10. scissuras aut *in marg* H et *pro* aut A

¹THE THIRD BOOK

²Chapter I: ³The second type of melodic pattern—the enharmonic.*

⁴Now that I have duly dealt with these topics in the way that I have, and collated in one place the fifteen pitches of the philosophers—arranged only according to the diatonic genus—I think now that I must hasten to the matter of the tones, tropes or modes; the whole practice of this art is without any doubt contained in these, and I previously did promise to deal with it. ⁵Having previously listed two further types of melodic pattern, and although Marchetto was totally ignorant of what these are or were, he nevertheless unashamedly wished to distinguish, contrary to the laws of nature, three types of semitone in addition to the three melodic genera.¹ ⁶For he had read in the *De Musica* of Boethius about the three melodic genera,² and thought that the terms used for the tetrachords were those of the three types of semitone. ⁷Where, pray, since time began, has anyone heard of diatonic, enharmonic and chromatic semitones, except in the writings of Marchetto?³ ⁸For in that genus which we have dealt with so far, the tetrachords progress through a minor semitone, a tone and a tone, as can be seen to be clarified in the general diagram. ⁹It is for this reason that it is called the diatonic genus. ¹⁰However, that genus, for which I intend to offer some discussion at least, divided the minor semitone—as far as the ancient Greeks were concerned—into two equal parts; these they referred to as *dieses*—that is, segments or divisions.* ¹¹Thus in this genus, the tetrachords proceeded as follows: diesis, diesis, ditone; the ditone was positioned within a single interval, so that the distance between the hypate hypaton and the parhypate hypaton was always a diesis, from the latter pitch to the lichanos hypaton was likewise a diesis; then from the lichanos to the hypate meson was the distance

¹For Marchetto's five-fold division of the whole tone, with the resultant semitones, see *Lucidarium* 2.6.2-2.8.11.

²*De inst.mus.* 1,21 (212,24-213)

³A paraphrase of this question is in Hothby *Tres tract.* p. 51.

a lichanos autem in hypate meson ditonus, sicque de relictis. ¹²Porro proslambanomenos in omni genere naturam non mutabat, et extrema quaeque tetrachordorum in omni loco diatessaron consonabant. ¹³Nam etsi dieses in monochordo resonare possent, humana voce tamen proferri nequebant, sed iunctae simul illud ac idem quod in diatonico genere semitonium reddebant. ¹⁴Hinc est quod enarmonicum dicitur, quasi bene coniunctum et coaptatum, teste Boetio, et haec eius brevissima descriptio sufficit pro caeteris omnibus quae de primo tantum hic inseritur tetrachordo.

¹⁵Verum id prius interrogare volo: si minus istud semitonium, sic per duas dieses divisum, illud est quod primum habuit genus diatonicum, nec aliud unquam a natura sit huic simile nobis revelatum, ubi precor erit illud quod Marchettus vocat enarmonicum? ¹⁶Certe si semitonium oporteat esse prorsus diatonicum, quod nusquam praeter in Marchetto legimus, istud quod limma quondam vocabatur aut diesis, illud est sine quo nullum esse potest modulandi genus. ¹⁷Cur quaeso si sit in omni genere modulandi minus istud semitonium, a primo non debeat magis quam ab aliis duobus sumere vocabulum? ¹⁸Etsi diatonicum fuerit, iam nullum est enarmonicum aut unum et idem erit.

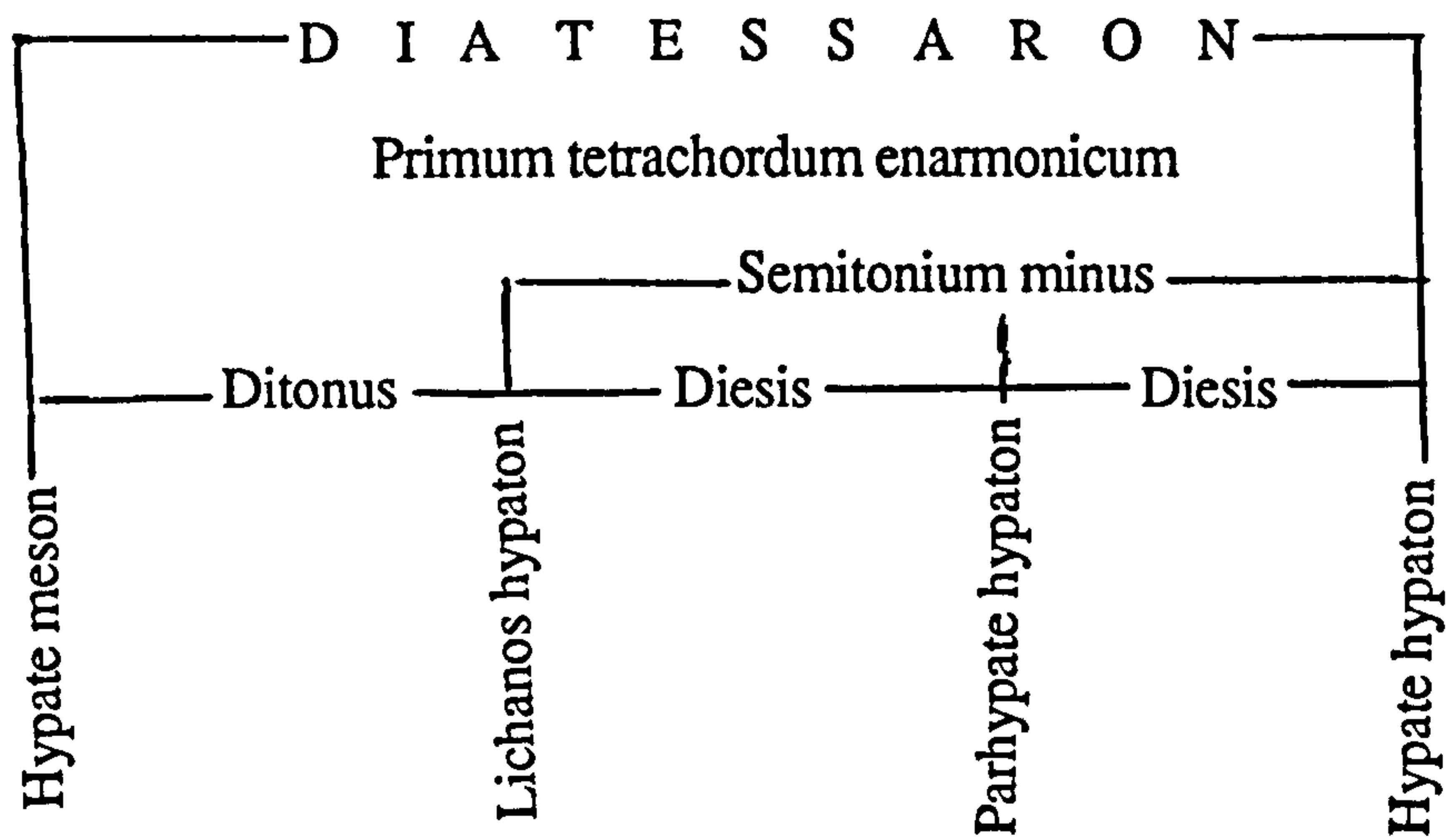
-
12. sonabant A
 13. (a) *supra lin* H
 14. teste Boetio *supra lin* H
 16. prepter A
 linea *pro* limma A
 quondam *scripsi* condam HA
 17. istud minus A

of a ditone, and so on. ¹²In every genus, moreover, the proslambanomenos never changed its function, and the outer limits of the tetrachords produced the consonance of a diatessaron in every position. ¹³For even if the dieses were able to sound on the monochord, they could not be produced by the human voice; however, when they were joined together in pairs, they produced the very same semitone as in the diatonic genus. ¹⁴It is for this reason that it is called enharmonic, which means, according to Boethius, that it is perfectly joined and linked.⁴ This very brief description which is here inserted only of the first tetrachord suffices for all the rest.

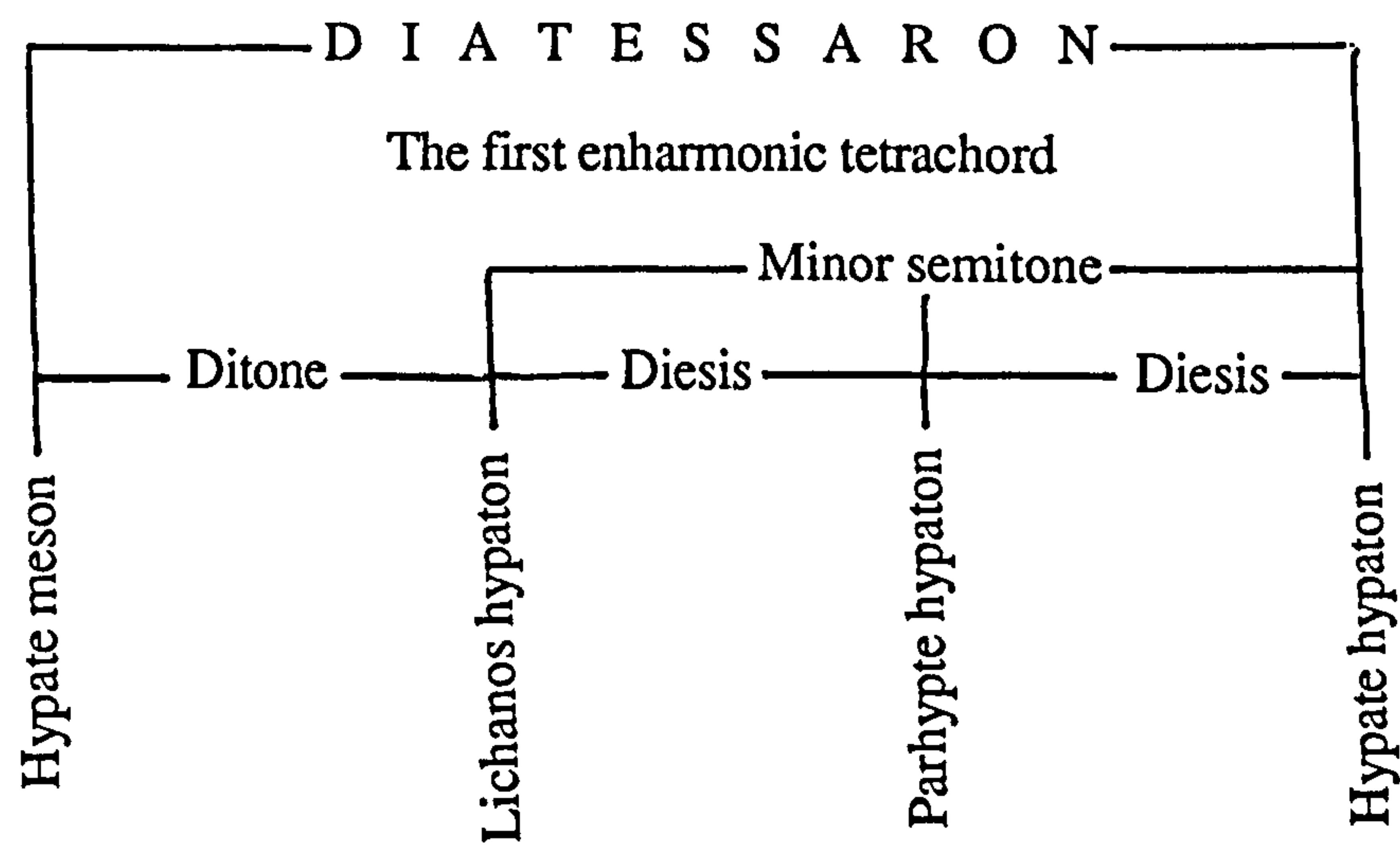
¹⁵But first, I wish to ask the following question: if that minor semitone—divided into two dieses in this way—is none other than that possessed by the first diatonic genus, and no other resembling it has ever been revealed to us by Nature, then where, I pray, will be that which Marchetto refers to as the enharmonic semitone? ¹⁶Clearly, if the diatonic semitone were to exist without any doubt, a term we read of only in the writings of Marchetto, that which at one time used to be called the *limma* or *diesis* is the one which is indispensable to every melodic pattern. ¹⁷And if this minor semitone exists in every type of melodic pattern, then why, I ask, should it not derive its name from the first genus rather than from the other two? ¹⁸And even if the diatonic semitone were to exist, then surely there is no such semitone as the enharmonic, or else they will be one and the same thing.

⁴*De inst.mus.* 1,21 (213,14-15).

¹⁹Istud primum tetrachordum enarmonici generis ponitur hic in exemplum pro caeteris sequentibus, quod nunc est tam superfluum quam ignotum hominibus.



¹⁹This, the first tetrachord of the enharmonic type, is placed here as an example for the rest of the tetrachords which follow. At the present time it is not only useless, but is unknown to men.⁵



⁵Cf below *Pars prima* 3.3.3.

¹Capitulum secundum:

²Tertium modulandi genus esse chromaticum.

³Genus autem modulandi tertium ab eo quod *chroma* dicitur, id est color, chromaticum est appellatum, nam sicut permutatae superficies in alterum transeunt colorem, ita genus istud canendi tamquam color immutatus ab aliis differebat. ⁴Eius vero tetrachorda per minus ac maius semitonium procedebant, iterumque per semiditonum in uno scilicet intervallo positum, ita quod ab hypate hypaton in parhypate hypaton erat semper minus semitonium, et ab ea maius in lichanos hypaton quod totum tonus est, a qua profecto lichanos in hypate meson unius intervalli semiditonus erat, qui diatessaron et sic in caeteris complebat.

⁵De hoc genere Boetius sic ait: ⁶*Chroma autem, quod dicitur color, quasi iam ab huiusmodi intentionemutatio cantatur per semitonium et semitonium ac tria semitonia.* ⁷*Tota enim, inquit, diatessaron consonantia duorum tonorum est ac semitonii, sed non pleni.* ⁸Atque post paululum de enarmonico: *enarmonicum vero quidem magis coaptatum est quod cantatur in omnibus tetrachordis per diesin et diesin et ditonum; diesis autem est semitonii dimidium.* ⁹Haec de his Boetius.

1. A 19v H 23
 3. (tamquam) varius *dele* H
 6. ad *pro* ab A
 7. inquit enim A
 8. coaptum A

¹Chapter II ²The third type of melodic pattern is the chromatic.

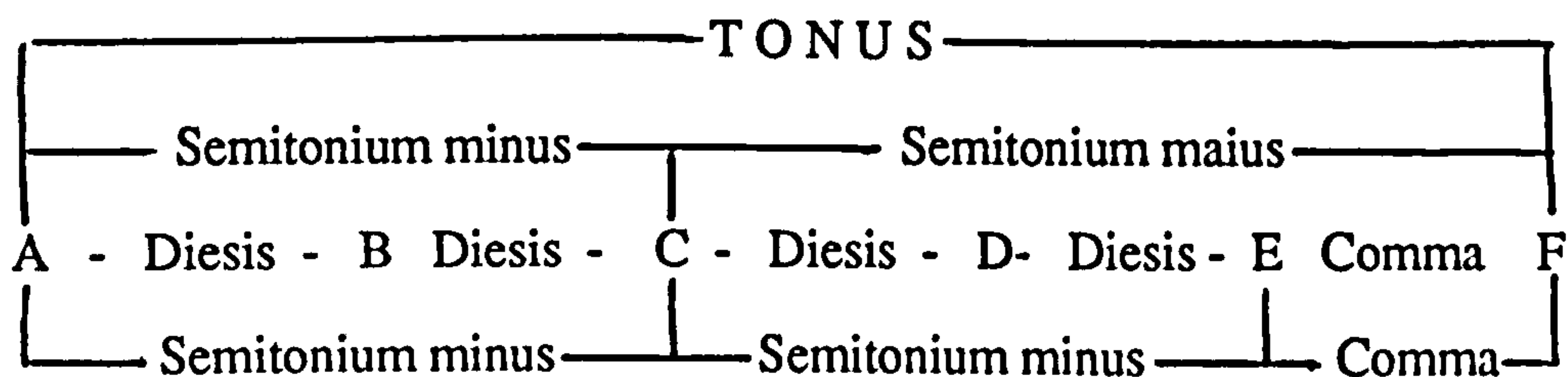
³The third type of melodic pattern was called the chromatic because it derives its name from *chroma* which means 'colour'. For just as changeable surfaces change their colour, so this type of melodic pattern differed from the other like a changed colour. ⁴Its tetrachords in fact progressed through a minor and major semitone, and again through a semiditone, positioned of course within a single interval, so that there was always the distance of a minor semitone between the hypate hypaton and the parhypate hypaton, and from the latter pitch to the lichanos hypaton the distance of a major semitone, the total distance being that of a whole tone. Then clearly from this lichanos to the hypate meson lay the distance of a semiditone as a single interval, thus completing the diatessaron, which is the case with the other genera. ⁵Boethius makes the following statements regarding the genus: ⁶'The chroma –which means colour–being a kind of change from that kind of tuning–has a vocal line involving the following progression: semitone, semitone, three semitones'. ⁷'For', he says, 'the complete consonance of the diatessaron is made up of two tones plus one semitone, but not a complete one'.⁶ ⁸Then, after a while, he writes thus concerning the enharmonic genus: 'The enharmonic genus is more tightly linked⁷ because its vocal line, throughout all its tetrachords, progresses as follows: diesis, diesis, ditone; the diesis is equal to half a semitone'.⁸ ⁹This is what Boethius wrote about these genera.

⁶*De inst. mus.* 1,21 (213,8-12).

⁷Cf above *Pars prima* 3.1.14.

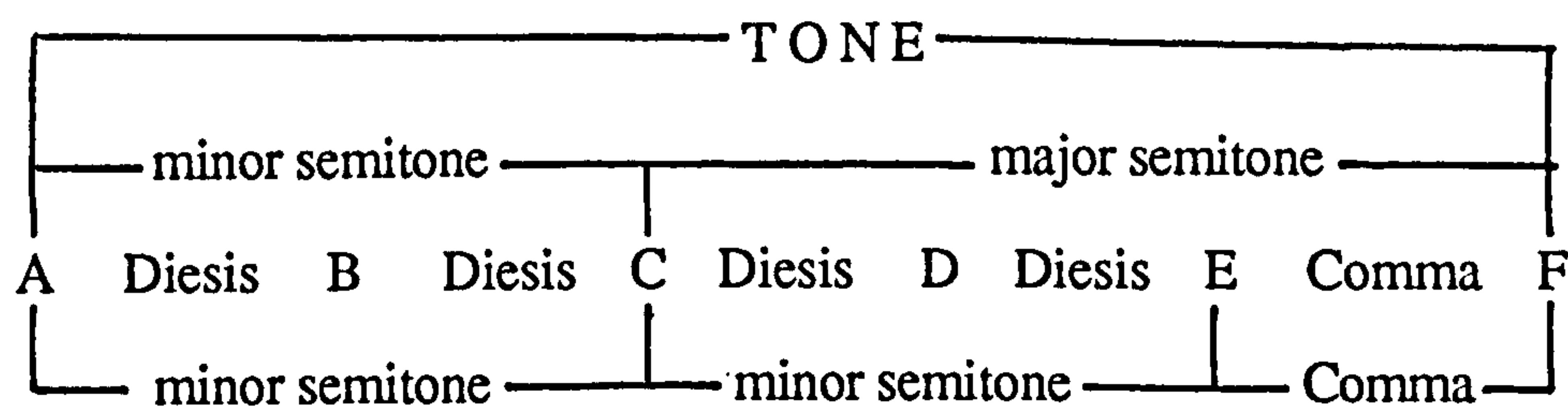
⁸*De inst. mus.* 1,21 (213,14-17). Boethius later cites Philolaus, who claims that the diesis is equal to the minor semitone itself: 'Diesis inquit est spatium quo maior est sesquitercia proportio duobus tonis'. (3,8 (12-13)). For Philolaus, see *Bower/Boethius* p. 96, f. 14.

¹⁰Cum fas non sit itaque tam eximio musico non credere cui nec ipsa natura discordat, sed quaecumque scribit approbat, absque dubio phantasticum illud Marchetti semitonium omnino non est, quod de quatuor diesibus velle fabricare praesumpsit et chromaticum appellare. ¹¹Natura namque viros ab antiquo peritissimos edocuit in duo primum non aequa posse dividi tonum, qui partem maiorem *apothome* nominarunt, partemque minorem diesin; aliquo tempore verum invento postea genere enarmonico dictum est minus semitonium, ac diesis pars eius media. ¹²Secundum quos philosophos ac ingenii perspicacissimi viros tonus quinque partes habere potest, semitonium utpote maius et minus, sed quia maius nihil aliud est quam minus et una particula, tonus quatuor dieses habet cum illa. ¹³Quae quidem particula comma vocitata est, utque fiat quatuor cum commate diesium descriptio, sit AB diesis, BC diesis, CD diesis, DE diesis, et EF comma parvulum, AC quidem minus erit semitonium, ac CF maius, iterumque CE minus semitonium, et EF comma praedictum, AF autem tonus:



-
11. qui *supra lin H*
 (partem) que *dele H*
 est *supra lin H*
 13. fiat *om A*

¹⁰Since then it is not right to doubt the word of such a distinguished musician, with whom even Nature herself does not disagree, but approves of everything he writes, then clearly this imaginary semitone of Marchetto in no way exists—a semitone which he dared to wish to make up from four dieses, and bestow the term 'chromatic' upon it.⁹ ¹¹For Nature, from the earliest times, has instructed the most expert among men that the whole tone cannot be divided into two equal halves; these called the greater part the apothome, and the lesser the diesis; however, at a later stage, after the invention of the enharmonic genus, the term 'minor semitone' came into being, and half of this was equal to the diesis. ¹²According to these philosophers, and indeed other men possessing a very perceptive intelligence, the whole tone can have five constituent parts. This whole tone was made up of the major and minor semitones, but since the greater is a combination of the smaller plus one particle, then the tone is made up of four dieses plus this particle. ¹³This small particle was called the *comma*, and in order that there might be an exposition of the four dieses plus comma, let AB be a diesis, likewise BC, CD and DE, and let there be a tiny comma between E and F. Then between A and C will be a minor semitone, between C and F a major, again between C and E will be a minor semitone, and between E and F the comma previously mentioned; a whole tone then will separate A and F.



⁹*Lucidarium* 2.8.2.

¹⁴In hoc ergo, quod Marchettus primum de suis semitoniis duas habere dieses asseruit, errando veraciter non erravit. ¹⁵Erravit inquam illud appellando magis enarmonicum quam diatonicum aut chromaticum, nam, ut dixi superius, unum est et idem in omni genere minus semitonium, quamquam dicendo duas dieses habet non desipuerit. ¹⁶Dicens autem de secundo suo semitono diatonico quod tres dieses habeat, id non est auditum a saeculo, cum nihil sit aliud quam apothome supradescriptum, et ex parvo residuo toni quadripartiti duabus diesibus addito contextum.

¹⁷Ergo comma parvissimum duabus diesibus iunctum apothomen generat, nil pro sua maioriata per se valens ac ineptissimum, et iungere simul tres dieses aut quatuor discors non erit atque turpissimum? ¹⁸Fiat oro primum tetrachordum in genere chromatico pro caeteris omnibus, discurrens utputa per minus ac maius semitonium et semiditonus, quoniam de his altercari cum inscio Marchetto post haec totum esset superfluum.

16. abdito A
 17. maioriata per se *in marg* H
 18. discurrens *om* A

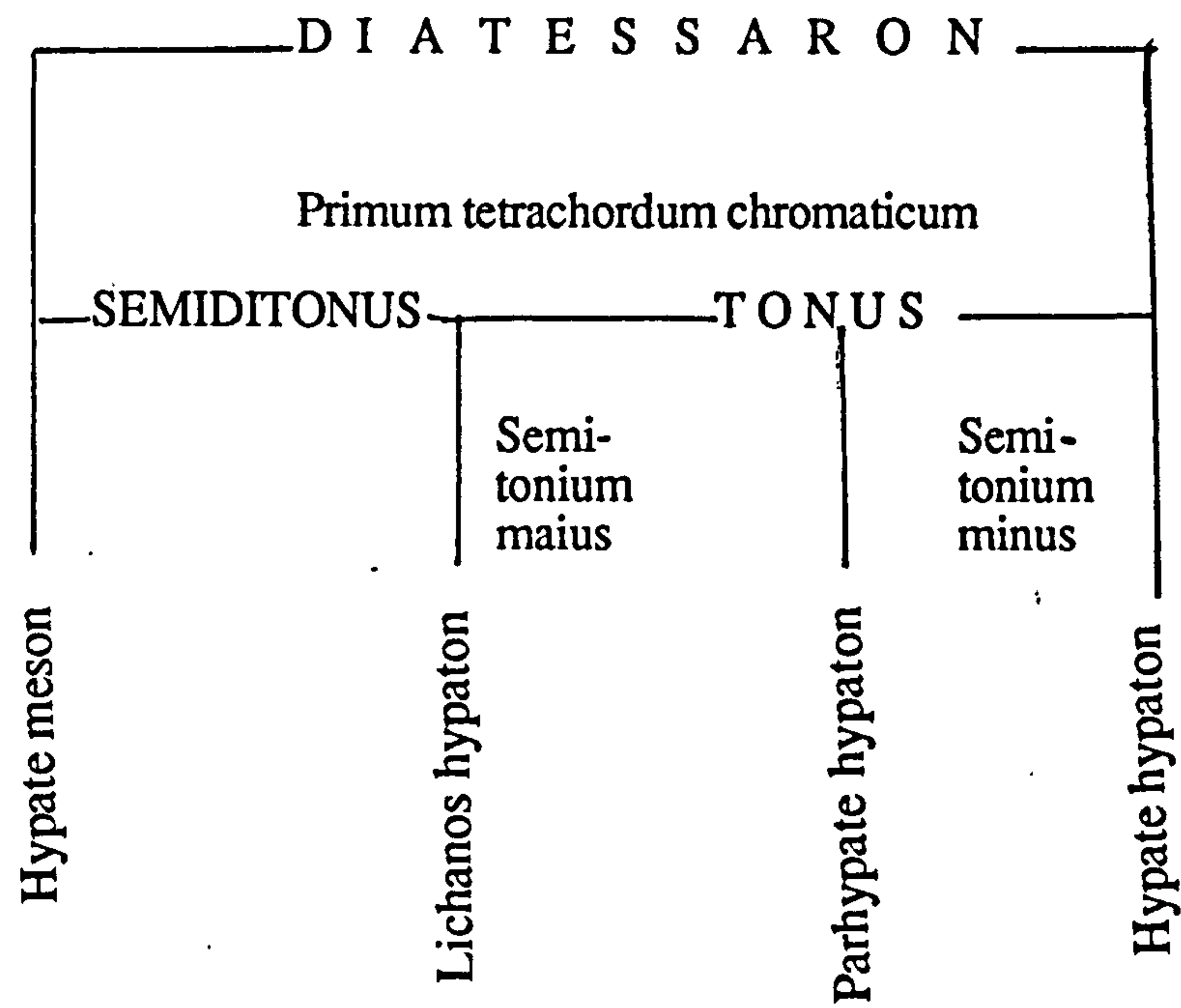
¹⁴In this then—the fact that Marchetto claimed that the first of his semitones was made up of two dieses—despite his error, he actually was right. ¹⁵His mistake lay, I say, in referring to this as an enharmonic, rather than a diatonic or chromatic semitone. For, as I have previously pointed out,¹⁰ the minor semitone is one and the same in every genus, though his statement that it was made up of two dieses is not a foolish one. ¹⁶However, as regards his claim that his second semitone—the diatonic—is made up of three dieses, no-one since the world began has heard this to be the case;¹¹ for this is none other than the apothome described above, and a combination of the small residual part of the whole tone—when divided into its four constituent parts—added to two dieses.

¹⁷Therefore, the smallest particle—which is the comma—in combination with two dieses, produces an apothome. The comma is valueless on its own, and a total absurdity as far as its own size is concerned—and will it not be inharmonious and totally disagreeable to combine together three or four dieses? ¹⁸Let us have then, I beg you, the first tetrachord in the chromatic genus which will suffice for all the rest, progressing as it does as follows: minor semitone, major semitone, semiditone; I say this because to argue about these matters with the ignorant Marchetto would be totally pointless after this.

¹⁰See above *Pars secunda* 3.1.15.

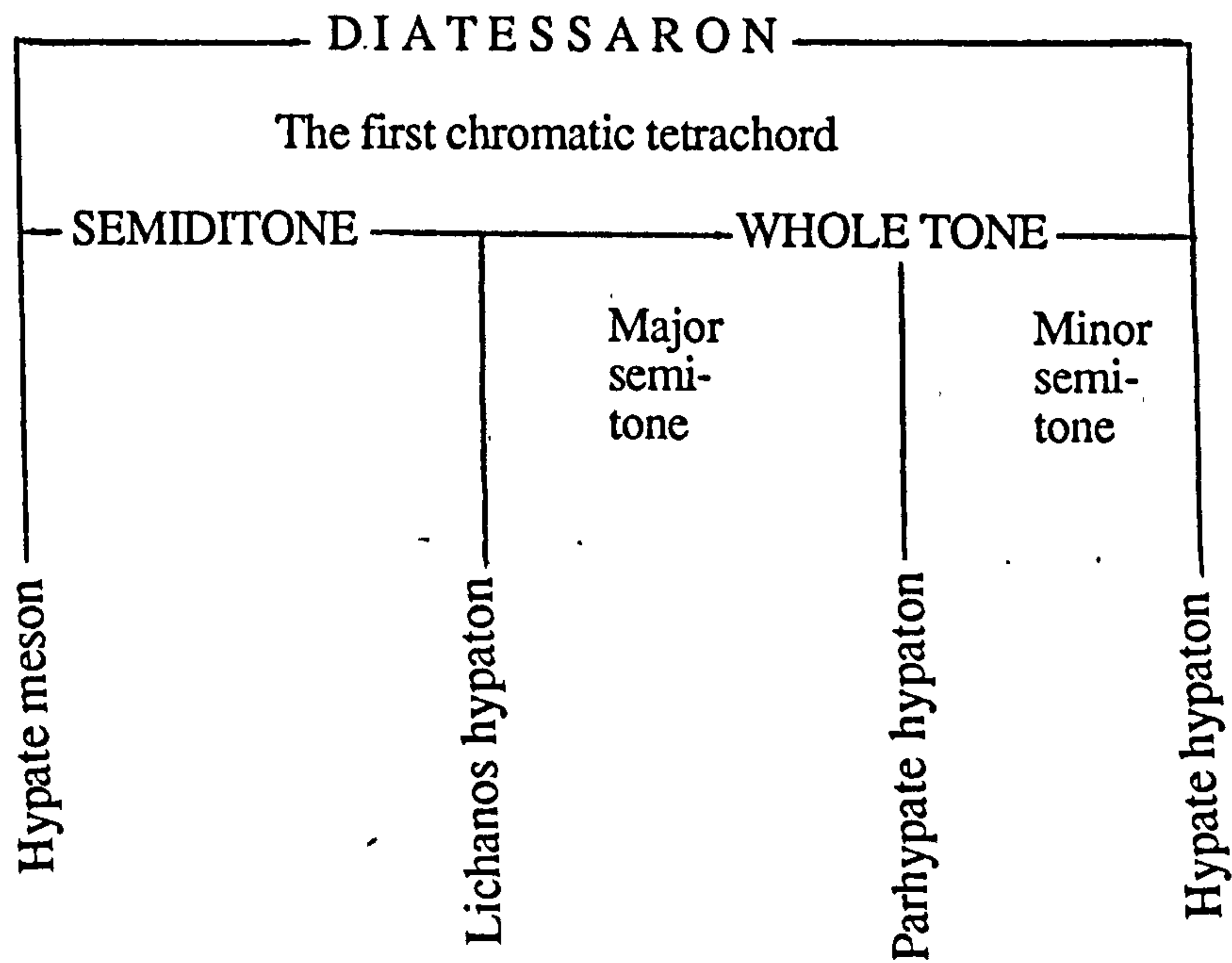
¹¹*Lucidarium* 2.7.3.

19Istud primum tetrachordum est chromatici generis, quod ponitur hic in exemplum pro caeteris sequentibus, et est nunc tam superfluum quam ignotum hominibus.



19. quod nunc est *pro* et est nunc A

¹⁹This is the first tetrachord of the chromatic type, which is placed here to serve as an example for the other tetrachords which follow it. This also has no use at the present time, and is unknown to men.



¹Capitulum Tertium:

²Tres esse diatessaron species.

³Descriptis breviter duobus illis apud nos tam ignotis quam non necessariis canendi generibus, volens ergo quod promisi de tonis tropis sive modis antiquis ad effectum perducere, prius me oportet species diatessaron diapente et diapason diligenter exprimere. ⁴Quas licet Boetius exclusa prima proslambanomenos chorda cum tetrachordo synemmenon demonstrans, et a mese chorda primo, deinde a nete hyperboleon inchoans, versus hypate hypaton declinet, nos nihilominus usitatum nobis ordinem et modum servantes, ab ipsa voce prima cunctisque nunc notissima sumere malumus exordium, ⁵et primo quidem ab admirabili diatessaron virtuosaque nimis quamquam parvula, dum quicquid in musica fiat ab illa prodire prius videas, nec ullam sine se fieri velit aliam consonantiam. ⁶Tolle quaeso si potes diatessaron, parvissimam omnium perfectarum, ubi tunc perfectio earum? ⁷Nam nec ipsa diapente, quamvis maior ea paululum, sine diatessaron non attingit ad aequale summumque perfectum. ⁸Haec est quae duas ex se gignit in quantitate sibi similes, in qualitate vero multum dissimiles, ob quod illam habere tres species dicitur seu varietates, unam ex tono semitonio minori et tono, aliam ex minori semitonio tono et tono, tertiam autem ex tono, tono et minori semitonio.

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- | | |
|----|---|
| 1. | A 20r H 24r |
| 3. | ergo <i>pro</i> ego A
me <i>in marg</i> H <i>om</i> A |
| 4. | (corda) demonstrans <i>dele</i> H
dein H
valuimus A |
| 5. | virtuosque A
aliam <i>in marg</i> H
ad aequale <i>in marg</i> H |
| 8. | minori <i>supra lin</i> H |

¹Chapter III: ²That there are three species of diatessaron.

³Having briefly described those two genera of melodic pattern—as unknown to our generation as they are unnecessary—I wish to fulfil my promise concerning the tones, tropes or modes of antiquity. Consequently, I should first carefully describe the species of diatessaron,¹² diapente and diapason. ⁴Despite the fact that Boethius in his explanation does not include the first pitch, the proslambanomenos, or the conjunct tetrachord, but works down toward the hypate hypaton, starting first with the mese, and then with the nete hyperboleon, we nevertheless will preserve the order and method which is familiar to us, preferring to adopt the order which begins with that first pitch which is now perfectly familiar to all. ⁵Let us begin with the admirable diatessaron which is full of superb qualities despite its very small size, while first you realize that whatever event takes place in music springs from this, and that it refuses to allow any other consonance to exist without it. ⁶Remove the diatessaron, pray, if you can—the smallest of all perfect consonances—where then is their own perfection? ⁷For even the diapente, though it is a little larger than it, cannot achieve the pinnacle of perfection and equality without the diatessaron. ⁸This consonance then is the one which gives birth to two others which are similar to it in range, but quite different in character, and because of this fact it is said to possess three species or types: the first is made up of the following: tone, minor semitone, tone; the second comprises the minor semitone, tone, tone; the third progresses as follows: tone, tone, minor semitone.¹³

¹²For Boethius' classification of the diatessaron species, see *De inst. mus.* 4,14 (338,18-20).

¹³Johannes' classifications follow Berno (GS 2.p. 67) following an earlier anonymous writer (GS 1.p. 313) and Anonymous 1 (GS 1.p. 130).

⁹Sit ergo proslambanomenos A primum, hypate hypaton B primum, parhypate hypaton C primum, lichanos hypaton D primum, hypate meson E primum, parhypate meson F primum, lichanos meson G primum. ¹⁰Quia vero corda mese cum his, quae sequuntur, voces easdem replicat, ut omnis hebdomae primus dies, iterum erit A mese sed secundum, paramese B secundum, trite diezeugmenon C secundum, paranete diezeugmenon D secundum, nete diezeugmenon E secundum, trite hyperboleon F secundum, paranete hyperboleon G secundum, sed A tertium sit nete hyperboleon. ¹¹Tunc AD tam primum quam secundum primam reddit in uno intervallo diatessaron speciem, sed ABD in duobus et ABCD in tribus sicut et DG aut DEG aut DEFG primum et secundum.

¹²Secunda diatessaron species est BE in uno intervallo tam primum quam secundum, aut BCE in duobus aut BCDE in tribus, non aliter quam EA vel EFA vel EFGA tam primum quam secundum.

¹³Tertiam autem CF tam primum quam secundum in uno demonstrant intervallo diatessaron speciem, aut CDF in duobus, aut CDEF in tribus, veluti GC vel GAC vel GABC quolibet in loco repertum.

¹⁴Omnis itaque consonantia minus habet intervallum quam habeat voces, ut supradictum est, et quot intervalla tot species, ut in hac figura patet.

-
10. corda *supra lin* H
 sequuntur *scripsi* secuntur HA
 sed *om* A
 (secundum) nete diezeugmenon.....F secundum *om* A
 sit *om* A
 11. (DG) primum et secundum *dele* H
 13. (GABC) tam *dele* H

⁹Let then the proslambanomenos be the first A, the hypate hypaton the first B, the parhypate hypaton the first C, the lichanos hypaton the first D, the hypate meson the first E, the parhypate meson the first F, and the lichanos meson the first G. ¹⁰Since however the mese, together with the pitches which follow, reproduce the same series of pitches, just as the first day—and the following—of every week is repeated, there will be another A at the mese, but called the second; the paramese will be the second B, the trite diezeugmenon the second C, the paranete diezeugmenon the second D, the nete diezeugmenon the second E, the trite hyperboleon the second F, and the paranete hyperboleon the second G. However, the third A needs then to be the nete hyperboleon. ¹¹Then the pitches A to D—in both the first register and the second—produce the first species of diatessaron in one interval; the pitches ABD constitute one in two intervals, and the pitches ABCD one in three intervals. The same scheme applies to the pitches D to G, DEG and DEFG in both registers.

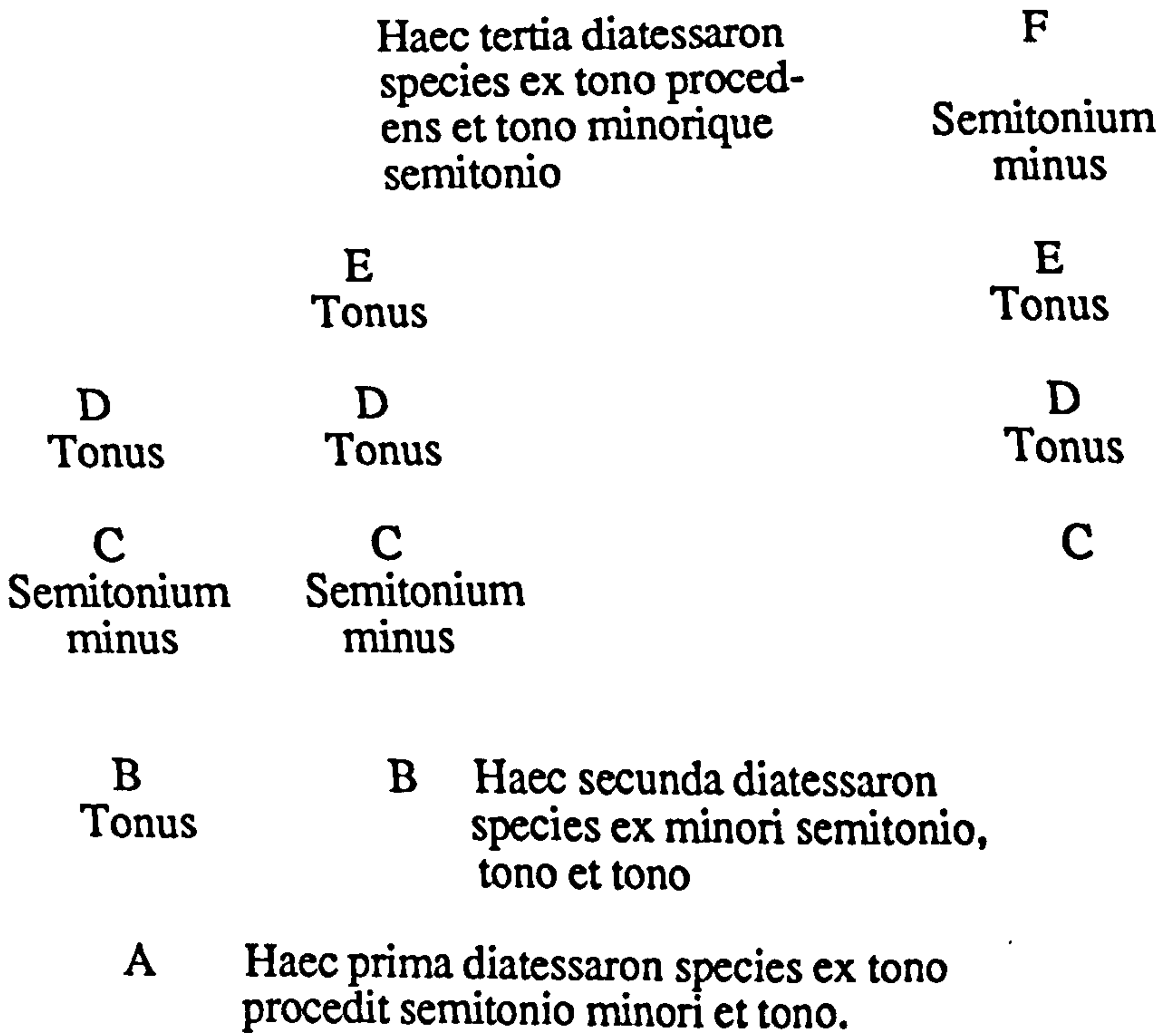
¹²The second species of diatessaron extends—in one interval—from B to E in both registers; the pitches BCE in two intervals and the pitches BCDE in three. The same scheme applies to the pitches EA or EFA or EFGA in both registers.

¹³The pitches C to F in both registers demonstrate the third species of diatessaron in one interval; the pitches CDF in two intervals, and the pitches CDEF in three. The same applies to the pitches G to C, and to GAC or GABC in whatever register these pitches are found.

¹⁴And so every consonance possesses one less interval than it does pitches, as I have previously pointed out;¹⁴ there are as many species as there are intervals, as the following diagram makes clear.

¹⁴*De inst. mus.* 4,14 (338,16-17) and cf *Pars prima* 1.3.12.

15Haec prima consonantia nobilis quamquam parvula tribus his differentiis quicquid canitur colligit, nam ultra diatessaron nil novum est in musica.



haec (secunda) om H
ex (minori) om A

15This prime consonance, small though it be, is a consonance of nobility; by means of these three different systems it gathers to itself everything which is sung, for nothing new exists in music beyond the diatessaron.

This is the third diatessaron species
which progresses through a tone,
another tone and a minor semitone

D
Tone

C
Minor semitone

B
Tone

E
Tone

D
Tone

C
Minor semitone

B
Tone

E
Tone

D
Tone

C
Minor semitone

B This is the second species
of diatessaron with the
order semitone, tone, tone

A This is the first species of diatessaron
which progresses through a tone, a minor
semitone and a tone

¹Capitulum quartum: ²Quatuor esse diapente species.

³Diapente quamvis parumper diatessaron sit maiuscula, robustior perfectior ac aequalitati propinquior, nequit tamen veram aequalitatis assequi perfectionem sine illa. ⁴Cur hoc? ⁵Quoniam quidem neque spes absque fide, neque fides absque spe, veram illam, quae in Deo est, apprehendit caritatem. ⁶Fides ab humilitate prodit, et diatessaron e tonis constat et semitoniis quae tantum ab aequalitate distant quantum alta differunt ab imis. ⁷Fides spem ea maiorem atque caritati propinquiorem generat, et diatessaron diapente gignit sese praestantiorum ac perfectissimae consonantiarum quae diapason est viciniorem. ⁸Simul iunctae fides et spes caritatem efficiunt, et diatessaron ac diapente, si copulentur, ad summam concordiam aequalitatis ac unitatis perveniunt. ⁹Quid amplius? ¹⁰Adeo sunt hae duae primae consonantiae duabus illis virtutibus, spei videlicet atque fidei, similes, ut quemadmodum vana spes est in malis actibus et mortua fides absque bonis operibus, ita falsa diatessaron de tribus tonis integris, ac falsa diapente de duobus tonis cum totidem minoribus semitoniis. ¹¹Illae nunquam iunctae simul veram caritatem apprehendunt, sicut et istae perfectam diapason colligatae discordem reddunt.

1. A2Ir H 25r
3. perfectio A
 veram *supra lin* H
5. est apprehendit *scripsi* est non apprehendit HA non *supra lin* H
6. Spes *pro* Fides A
 differunt *in marg* H
7. Spes fidem A
8. spes et fides A
 (ac) pulata *dele* H
10. primae *supra lin* H
 in *supra lin* H
 falsa² *scripsi* falsum HA
11 discordem *in marg*

¹Chapter IV: ²That there are four species of diapente.

³Though as an interval the diapente is somewhat larger than the diatessaron, and also stronger, more perfect, and nearer to equality, nevertheless, it cannot attain the true perfection of equality without the aid of the smaller interval. ⁴Why is this? ⁵Since neither hope without faith, nor faith without hope, can grasp that true charity which is in God;¹⁵ ⁶faith springs from humility, and the diatessaron is made up of tones and semitones, which are as far removed from equality as the heights are distant from the depths. ⁷Faith engenders hope which is greater than it, and nearer to love; likewise, the diatessaron produces the diapente, which is far superior to it and more closely related to that most perfect of consonances, which is the diapason. ⁸When allied together, faith and hope produce love; likewise, when the diatessaron and the diapente are combined together, they attain the supreme harmony of equality and unity. ⁹What need is there to say more? ¹⁰So similar are these two prime consonances to those virtues of hope and faith, that in the same way as hope is meaningless when involved with evil deeds, and faith is dead when isolated from good works, so that diatessaron is false which is made up of three whole tones, as is the diapente which contains two whole tones and the same number of minor semitones. ¹¹These never, when joined together, attain true charity; in the same way, those two intervals when joined together make the perfect diapason discordant.

∴

¹⁵The observation that Faith and Hope are the constituents of Love occurs in the anonymous writer of *Summa musicae* (GS 3 p. 242).

¹²Haec est diapente trium primarum consonantiarum mediocris ac secunda quae tres et ipsa sibi pares in quantitate, sed in qualitate dispares ex se generat, pro quo iure dicitur habere quatuor species seu varietates, primam ex tono, semitonio minori, tono et tono, secundam ex semitonio minori, tono, tono et tono, tertiam ex tono, tono, tono et minori semitonio, quartam autem ex tono, tono, minori semitonio et tono.

¹³Erit itaque prima diapente varietas AE tam primum quam secundum in uno tantum intervallo, sed ABE in duobus, et ABCE in tribus, et ABCDE in quatuor, sicut et DA vel DEA vel DEFA vel DEFGA tam primum quam secundum sive tertium.

¹⁴Secunda diapente species est E primum et B secundum in uno intervallo, vel EFB in duobus, aut EFGB in tribus, aut EFGAB in quatuor, nec est alia sibi similis nisi B tertium addideris.

¹⁵Tertia vero species est F primum et C secundum in uno scilicet intervallo, vel FGC in duobus, vel FGAC in tribus, vel FGABC in quatuor, quae nullam in hoc ordine vocum habet sibi parem, si C tertium non subiungas.

¹⁶Quarta necnon diapente varietas est G primum et D secundum in uno intervallo, sive GAD in duobus, sive GABD in tribus, sive GABCD in quatuor, sicut et CG vel CDG vel CDEG vel CDEFG tam primum quam secundum, ut haec descriptio monstrat.

-
12. pars *pro* pares A
 generant A
 (semitonio minori) tono *dele* H (primam ex tono) semitonio....
 minori *om* A
 13. vel DEFA *om* A
 14. EFB in duobus *bis in* A
 15. silicet A
 partem *sic* A

¹²This diapente then, of the three prime consonances, ranks second in quality; it likewise produces three other species which are equal to itself in size, but different from it in character.¹⁶ As a result, it is rightly said to have four species or variations, as follows: the first proceeds: tone, minor semitone, tone, tone; the second: minor semitone, tone, tone, tone; the third: tone, tone, tone, minor semitone; the fourth: tone, tone minor semitone, tone.

¹³Thus the first species of diapente will extend from A to E in both parts of the register as one interval; the pitches ABE will involve two intervals, ABCE three, and ABCDE four; likewise, the pitches DA, DEA, DEFA or DEFGA in the first, second or third instances.

¹⁴The second species of diapente extends from the first E to the second B as a single interval, EFB in two, EFGB in three, and EFGAB in four; this species does not exist anywhere else in the range of pitches unless you add a third B.

¹⁵The third species extends from the first F to the second C as a single interval, FGC in two, FGAC in three, and FGABC in four; this species holds no other range of pitches which are similar to it in this order of pitches, if you do not add a third C.

¹⁶The fourth species of diapente extends from the first G to the second D as one interval, GAD in two, GABD in three, and GABCD in four; likewise, the pitches CG, CDG, CDEG or CDEFG in both parts of the register, as the following diagram makes clear.

¹⁶'...quantitate....qualitate': cf above *Pars prima* 3.3.8.

17This interval is a little larger than the preceding one, but when it is joined to it, it produces the duple ratio in seven different species, for the diapason is produced from this interval and that of the diatessaron.

			D Tone	
		C Minor Semitone	C Minor Semitone	
	B Tone	B Tone	B Tone	
A Tone	A Tone	A Tone	A Tone	
G Tone	G Tone	G Tone	G	Here is the fourth diapente species which progresses a tone, a tone, a minor semitone and a tone.
F Minor Semitone	F Minor Semitone	F	Here is the third diapente species which progresses through a tone, a tone, a tone and a minor semitone	
E Tone	E	Here is the second diapente species, which progresses through a minor semitone, a tone, a tone and a tone		
D	Here is the first diapente species which progresses through a tone, a minor semitone, a tone and a tone			

¹Capitulum quintum:

²Septem esse diapason species, septem quoque constitutiones.

³Diapason maxima trium primarum consonantiarum atque perfectarum ex pulchra diatessaron et pulchriori diapente conficitur pulcherrima, velut ex vera fide veraque spe caritas non ficta. ⁴Quis quaeso parum apud se cogitans scire non debeat quam sit diapason caritati simillima? ⁵Quantumlibet enim caelestis ille musicus Paulus Apostolus aequisonam caritatem, ut ita loquar, commendet, in virtutum harmonia tantum nostram extollere diapason non vereor in musicali concinentia. ⁶Non aemulatur illa, patiens est, benigna est, non agit perperam, non gaudet super iniquitate, non quaerit quae sua sunt cum his et similibus, quae sunt ibi de se commemorata.

⁷Haec autem aequisona dulcissimaque musicalis consonantia, sive simplex sive duplex aut quotienslibet multiplex, non solum nusquam discordiam generat, sed unum et idem ubique semper consonat, auribus humanis accepta prae caeteris consonantiis placens, hilaris et iocunda, suavium suavissima, perfectarum perfectissima, integrarum integerrima, nil durum habens, nil dissonum, nil inaequale, nil divisum, nil inconcinnum, sed totum unum, totum aequale, totum integrum, totum concors et simile. ⁸Quid plura? Nil placet absque caritate Deo, et nil valet absque diapason ulla cantio. ⁹Haec est diapason quae sex de se procreat alias in quantitate sibi per omnia similes, in qualitate tamen, hoc est in diatessaron ac diapente speciebus, valde dissimiles, ob quod habere septem species dicitur seu varias constitutiones.

-
1. A 21v H 26r
 2. septem quoque constitutiones *in marg* H
 3. ex vera spe veraque fide A
 6. illa, patiens est, benigna *in marg* H
his *om* A
 7. nil durum habens *om* A
totum² *om* A
 9. (similes) sed *dele* H

¹Chapter V: ²That there are seven species of diapason, and seven systems also.

³The diapason is the most beautiful sounding of the three perfect prime consonances, and is made up of the pleasant diatessaron and the even more pleasant diapente, in the same way as unfeigned love issues from true faith and true hope.¹⁷ ⁴I tell you, everyone should know, after a little thought, that the diapason is the most akin to love. ⁵For as that heavenly musician, Paul the Apostle, extols fair-sounding charity—if I may call it so—in the harmony of virtues,¹⁸ so I have no anxiety about exalting our own diapason to the same degree in musical concord. ⁶Love is not jealous, is patient and kind, does not behave badly, does not rejoice over evil, does not seek after its own—together with other similar things which are mentioned there concerning love.¹⁹

⁷Now this equison and sweetest of musical consonances—whether in its simple form, compounded, or multiplied to infinity—not only never produces discord, but always and everywhere produces the same harmonious sound acceptable above the rest of the consonances to the human ear. It is pleasing, joyful and happy; it is the most pleasant of pleasant sounds, the most perfect of perfect sounds, the most complete of complete sounds. In its character there is no harshness, no dissonance, no inequality, no division, no disharmony. It offers total equality, total wholeness; it is totally at one and identical with itself. ⁸What more is there to say? Nothing is pleasing to God which is divorced from love, and no melody is able to work which does not have the diapason in its make-up. ⁹This diapason then is the one which produces from itself six others which are identical to it in quantity throughout, but in quality or character are totally different on account of the species of diatessaron and diapente it contains. For this reason, it is said to possess seven species or different systems.

¹⁷Cf above *Pars prima* 3.4.5.

¹⁸1 *Ad Cor.* 13 1-13.

¹⁹*Ibid.*

¹⁰Species appello siquidem omnium consonantiarum varietates extremas tantum
 voculas attendendo, constitutiones autem id ipsum sed quicquid de medio est in
 tonis ac semitoniis computando. ¹¹*Est namque species, iuxta Boetii*
diffinitionem, quaedam positio propriam habens formam secundum
unumquodque genus, in uniuscuiusque proportionis consonantiam facientis
terminis constituta. ¹²*Constitutio vero est plenum velut modulationis corpus ex*
consonantiarum coniunctione consistens.

¹³Sunt igitur septem diapason species, A primum ad A secundum, sicque de
 caeteris considerando. ¹⁴Sunt et septem constitutiones eiusdem consonantiae
 quotquot toni et semitonia cadant inter quasvis duas litteras similes indagando.

¹⁵Prima ergo diapason constitutio est quam genus integrum ac naturale
 diatonicum ex prima specie diatessaron ABCD et ex prima diapente DEFGA,
 quas ante sic descripsimus in suis omnibus intervallis, componit ordinat et
 constituit, aut ex prima diapente ABCDE et ex secunda diatessaron EFGA,
 quod unum et idem erit.

¹⁶Secunda constitutio diapason est quam genus ipsum diatonicum ex secunda
 diatessaron specie BCDE et ex secunda diapente EFGAB; procreat in septem
 intervallis ut aliae omnes, et quinque tonis cum duobus semitoniis minoribus,
 aut ex falsa diapente, quod est BCDEF, et ex falsa diatessaron FGAB seu
 discordantissimo tritono.

14. toni *scripsi* tonos HA
 16. ut aliae omnes *in marg* H
 falsa *scripsi* falso^{1 et 2} HA
 17 (per) primam *dele* H tertiam *in marg* H

¹⁰I use the term 'species' for varieties of all the consonances—looking merely at the outer limits of pitch, but I call 'systems' the same thing, but taking into account the internal order of tones and semitones.* ¹¹For a species', according to the definition of Boethius, 'involves an order of pitches which has a particular structure according to the make-up of each genus; this order is set within the limits of any one numerical ratio which produces a consonance.'²⁰

¹²A system, on the other hand, is, so to speak, the complete body of the melodic pattern, made up of a combination of consonances.²¹

¹³There are therefore seven species of diapason, moving from the first A to the second, and so on. ¹⁴There are also seven systems of this same consonance, taking into account how many tones and semitones fall between any two letters which are alike.

¹⁵The first diapason system is the one which the diatonic genus—complete in itself and natural-sounding—establishes, orders and arranges from the first species of diatessaron ABCD and the first diapente DEFGA, both of which I have previously described in this way in all their intervals. Alternatively, it is made up of the first diapente ABCDE and the second diatessaron EFGA, with the same result.²²

¹⁶The second diapason system is the one which the same diatonic genus produces from the second species of diatessaron BCDE and the second diapente EFGAB; in common with the rest, it lies within a range of seven intervals and five whole tones and two minor semitones. Alternatively, it can be formed from the false diapente BCDEF, and from the false diatessaron FGAB, otherwise known as the most discordant tritone.

²⁰*De inst. mus.* 4, 14 (337, 22-25).*

²¹*De inst. mus.* 4, 15 (341, 22-24).

²²For the diapason species as products of individual diatessaron and diapente species, see Berno *Prologus in tonarium* (GS 2 p. 69) and Anonymous 1 (GS 1 p. 330).

¹⁷Tertia diapason constitutio est quam idem genus diatonicum disponit per tertiam diatessaron speciem CDEF ac per diapente tertiam FGABC cursu naturali vocum, aut per quartam diapente speciem CDEFG, ac per GABC diatessaron tertiam.

¹⁸Quarta diapason constitutio est quam ex prima diatessaron specie DEFG et ex quarta diapente GABCD connectit genus diatonicum, aut etiam ex prima diapente DEFGA et ex prima diatessaron ABCD, quod est idem.

¹⁹Quinta diapason constitutio est quam secunda diatessaron species EFGA cum prima diapente ABCDE generat per genus diatonicum, aut etiam secunda diapente species EFGAB cum secunda diatessaron BCDE, quod est unum.

²⁰Sexta diapason constitutio est quam tertia diapente species FGABC format, ac tertia diatessaron CDEF in diatonico genere scilicet, aut tritonus etiam FGAB cum diapente non integro BCDEF unum et idem diapason efficiens integrum.

²¹Septima necnon ac ultima diapason constitutio est quam ex tertia diatessaron specie GABC et ex quarta diapente CDEFG producit genus diatonicum, aut ex quarta diapente GABCD et ex prima diatessaron DEFG, quod contrahit unum et idem.

17. (per) primam *dele* H tertiam *in marg* H
 19. species *in marg* H
 D(EFGAB) *dele* H
 21. C(DEFG) *dele* H

¹⁷The third diapason system is the one which the same diatonic genus produces, by means of the third species of diatessaron CDEF, and the third diapente FGABC in its natural sequence of pitches. Alternatively, it can be made up of the fourth species of diapente CDEFG, and the third species of diatessaron GABC.

¹⁸The fourth diapason system is the one which the diatonic genus assembles from the first species of diatessaron DEFG and the fourth species of diapente GABCD. Alternatively, it can be produced from the first species of diapente DEFGA and the first species of diatessaron ABCD, with the same result.

¹⁹The fifth diapason system is made up of the second species of diatessaron EFGA with the first species of diapente ABCDE through the diatonic genus. Alternatively, it can be built from the second species of diapente EFGAB with the second species of diatessaron BCDE. Both methods provide the same result.

²⁰It is the third species of diapente FGABC together with the third diatessaron CDEF which forms the sixth diapason system—that is in the diatonic genus. Alternatively, this system can be formed from the tritone FGAB together with the imperfect diapente BCDEF. Nevertheless, a complete diapason is still produced.

²¹The seventh and last diapason system is the one which the diatonic genus produces from the third species of diatessaron GABC and the fourth diapente CDEFG. Alternatively, it can be produced from the fourth species of diapente GABCD, and from the first diatessaron DEFG; these in combination produce the same result.

22Cernis ecce lector septem esse diapason varias omnino constitutiones, hoc est tonorum et semitoniorum diatessaron ac diapente specierum diversas a natura dispositiones ordines et commutationes, itaque quaelibet earum octo voces habet sub octo litteris expressas, intervalla septem, tonos quinque cum duobus semitoniis minoribus, quod totum in hac quam excogitavi figura luce clarius erit.

23Haec illa consonantia diapason dulcissima quae septiformis oritur, ut hic aperte cernitur, ob triplex diatessaron ac diapente quadruplex, quae nectuntur ad invicem, et variantur septies.

G

F F

E E E

D D D D

C C C C C

B B B B B B

A A A A A A A

G G G G G G G Haec diapason septima species

F F F F F F Haec diapason sexta species

E E E E E Haec quinta species

D D D D Haec quarta

C C C Haec tertia

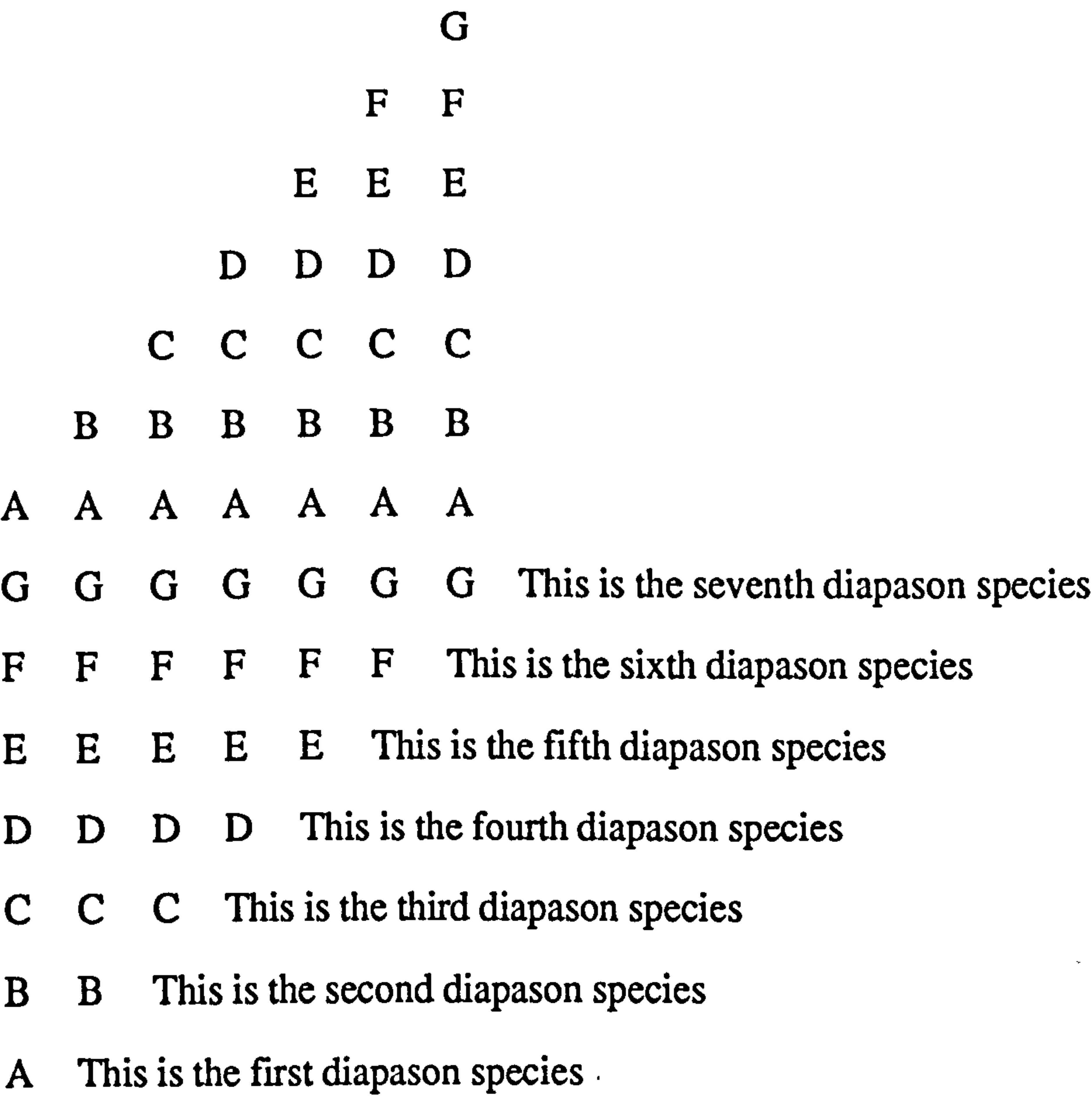
B B Haec est diapason secunda species

A Haec est diapason prima species

22. esse pro ecce A
 divisas pro diversas A

²²So you see then, dear reader, that there are in all seven different diapason systems, that is, varying natural arrangements, orders and combinations of tones and semitones of the species of diatessaron and diapente. Consequently, each one of them possesses eight pitches represented by eight letters. They also possess seven intervals, five whole tones and two minor semitones. All of this will be clearer than the light of day in the following diagram which I have devised.

²³Here is that sweetest of consonances, the diapason, which appears in seven different varieties, as is clearly demonstrated here, on account of the three species of diatessaron and the four species of diapente which are linked together in seven different combinations.



¹Capitulum sextum:

²Quid sit cantus, quidve cantio seu cantilena.

³Ex his vero septem diapason constitutionibus oportet ut prodeat omne quod dicitur cantio cantilena sive cantus. ⁴Phthongi namque, sicuti dictum est, litterae sunt musicales, toni cum semitoniis syllabae, ditonique cum semiditonis, diatessaron autem ac diapente, dictiones. ⁵Ex quibus, ut vides, harum omnium extant constitutionum ordines, quae quicquid canendo contextitur non aliter concipiunt quam si quis in grammatica de variis construat partibus orationis textum. ⁶Quid enim aliud in musica cantus cantilena vel cantio nisi contexta quaedam, ut ita dixerim, de praefatis musicalibus particulis constructio? ⁷Quotiens etenim ab unisono disceditur qui fit voces in eodem replicando, tonum totiens aut minus semitonium aut certe quoddam e praedictis profertur modulando.

⁸Sed hoc totum quid? ⁹Nihil nempe si quot modis hae fiant melorum constructiones non aperiam cantilenaе cantus et cantiones. ¹⁰Omnis ergo cantus aut parvus est aut mediocris aut magnus. ¹¹Qui si parvus extiterit, hoc est quod unum diapason non impleat, aut fortassis illud parumper transcendat, absque dubio quod in una septem illarum constitutionum cadat necesse est. ¹²Et siquidem primae servet harmoniam, id est in tonis ac semitoniis atque diatessaron ac diapente speciebus concinentiam, de prima constitutione diapason est;

2. cantis *pro* cantio A
 3. vero *supra lin* H
 septem *om* A
 6. contexta *in marg* H
 praefactis A
 8. tonum *pro* totum A
 12. serviet A

¹Chapter VI: ²The nature of melody, which the Latin words *cantio* and *cantilena* also embrace.

³It must be then that everything which is called *cantio*, *cantilena* or *cantus* is produced from these seven diapason systems. ⁴For *phthongi*, as has been stated, are the musical letters—the tones and semitones the syllables,²³ and also the ditones and the semiditones, the diatessaron and the diapente being the words. ⁵As you see, it is from these units that the various arrangements of all these systems manifest themselves; the systems are the basis of whatever is moulded into a vocal line, in exactly the same way as anyone in the field of grammar might compose the texture of an utterance from individual parts. ⁶For, if I may speak thus, what else, in the field of music, is melody—or *cantilena* or *cantio*—unless it be a coherent system made up of the basic musical components I have just mentioned? ⁷For whenever there is a departure from the unison—which exists by repeating pitches at the same level—then a tone, a minor semitone, or indeed any of the intervals I have mentioned, is produced by the change in pitch.

⁸But what is the point of all this? ⁹Surely it is a futile exercise unless I demonstrate the number of ways in which these melodic systems can produce actual melodies—or *cantus* or *cantiones*. ¹⁰Every melody therefore is of limited, of moderate, or extended range. ¹¹If a limited melodic line manifests itself—that is, one which either does not reach the diapason range, or perhaps goes slightly beyond it—then it must clearly fall within one of the seven systems. ¹²Further, if indeed it conforms to the tonal arrangement of the first system, that is a fitting combination of the tones, semitones, and the species of diatessaron and diapente, then it must have been born of the first diapason system.

²³Cf above *Pars prima* 1.2.12.

si vero secundae de secunda, et si tertiae de tertia, sicque de relictis.

¹³Quod si mediocris cantus, hoc est non solum unum occupans diapason, sed adhuc et diatessaron paulo plus, paulo minus, non erit huiusmodi de septem illis diapason constitutionibus, immo de quatuor diapason diatessaron, cum non sit parvus neque magnus.

¹⁴Si vero duplex diapason occupet cantus aut circiter, tunc erit magnus in constitutione bisdiapason videlicet institutus, quae constitutio generalis est, et alias omnes in se recipit et continet. ¹⁵Tria namque genera constitutionum penes Graecos philosophos extitisse reperimus, septem utputa diapason quas sursum descripsimus, et quatuor diapason diatessaron unamque bisdiapason; de quibus etiam Deo dante cito tractabimus.

13. unum *in marg* H
(non erit) de (huiusmodi) *add* A
15. ut *pro* et A

If it conforms to the second, it arises from the second system, and the third from the third, and so on.

¹³But if it is a melody of medium range, that is, one which occupies not merely a diapason, but a further diatessaron more or less, one of this type will not be born from one of the seven species of diapason, but from the four diapason plus diatessaron systems, because it has neither a limited nor an extensive range.

¹⁴If however the melody has a range of a double diapason or thereabouts, then it will have an extended range, and lie within the bisdiapason system. This system is of a general nature which receives and contains all other systems within itself. ¹⁵For we have found that, according to the Greek philosophers, there are three types of system—namely the seven diapason systems described above, the four diapason plus diatessaron systems and the one bisdiapason system. We shall quickly, with God's grace, deal also with the latter two.

¹Capitulum septimum: ²Quatuor diapason diatessaron constitutiones.

³Quoniam aliud est, ut ante paululum tetigi, graves sonos acutis aut e contra voces acutas gravibus comparando, quid simul extrema consonent inquirere, et aliud ipsas voces extremas cum interiectis de medio vocibus discernendo, tonos ac semitonia considerare, delectat admodum hic aliquid etiam de constitutionibus diapason diatessaron quas mediocres appellavimus, id est, neque parvas neque magnas inserere. ⁴Circa quod primo quaerendum est cur Boetius in quarto suae musicae libro capitulo quarto-decimo de constitutione diapason diatessaron et non de diapason diapente facit mentionem. ⁵Dein videndum quales et quot esse possint et debeant, quasve cantilenas cantus et cantiones in se recipiant.

⁶Ad primum itaque respondeo philosophos hac de causa magis diatessaron quam diapente creando constitutiones istas diapason copulasse, quia voces per tetrachordum, quod est diatessaron, prout supra monstratum est, diviserant, et non per pentachordum, quod nil aliud est quam diapente. ⁷Praeterea quamvis in tribus diapason diapente, sicut et in quatuor diapason diatessaron septem includi queant diapason species, quae replicari quidem ad libitum possunt, non tamen innovari, nihilominus hoc diapason diatessaron constitutio magis idoneum habet quod duas nec plus nec minus semper exprimit diapason species, ita quod si diatessaron auferas in inferioribus vocibus,

1. A 23v H27v
3. contra *pro* e contra A
 etiam *in marg* H
5 videndum *supra lin* H
6. ac *pro* hac A
 divisant A
7. propterea A
 manifesta A

¹Chapter VII: ²The four different systems of diapason plus diatessaron.

³Since it is one thing—a matter which I have previously touched upon briefly—to examine the outer pitches, and what consonances they produce, by making a comparison of the low pitches with the high, and conversely the high with the low, and another to consider the tones and the semitones by examining these outer pitches in relation to the pitches which come between, it gives great pleasure to me at this point to include something about the diapason plus diatessaron systems; these systems we have described as medium-range—that is, they are neither of limited nor extended range. ⁴In connection with this, we must first ask ourselves why Boethius, in the fourteenth chapter of the fourth book of his *De Musica*, makes mention of the diapason plus diatessaron, and not of the diapason plus diapente.²⁴ ⁵We must then be aware of what their nature and their number can and ought to be. Also, we need to examine what melodies—or *cantus* or *cantiones*—fit into these systems.

⁶My answer to the first query is that the philosophers, in the process of creating these systems, joined the diatessaron rather than the diapente to the diapason because—as I have previously pointed out²⁵—they constructed their pitch divisions according to the tetrachord, which corresponds to the diatessaron, and not according to the pentachord, which is none other than the diapente.²⁶ ⁷In addition, although the seven species of diapason can be included in the three species of diapason plus diapente as they can be in the four species of diapason plus diatessaron—and let us remember that these can be reproduced to infinity, but not altered—nevertheless, the diapason plus diatessaron system has this more convenient feature, that it always produces two—no more, no less—species of diapason; thus if you take away the diatessaron in the lower register,

²⁴*De inst.mus.*4,15 (341,25).*

²⁵See above *Pars prima* 1.8.4.

²⁶For Johannes' account of the Greater Perfect System, see above *Pars prima* 1.7.6.

una tibi diapason apparet, eademque subtracta de superioribus, altera se tibi manifestam praebet.

⁸Sunt autem quatuor diapason diatessaron omnino variae constitutiones, prima quarum ex prima constat specie diapason ABCDEFGA et ex prima diatessaron ABCD superius, de qua siquidem erit omnis cantus hanc eius harmoniam prosequens ac ultra diapason etiam diatessaron paulo plus, paulo minus habens.

⁹Secunda vero procedit ex secunda diapason BCDEFGAB et ex secunda diatessaron BCDE desuper, et est omnis cantus talem habens concinentiam ex ea, si tamen ultra diapason adhuc unum tetrachordum accipiat, paulo plus, paulo minus.

¹⁰Tertiam quoque tertia diapason CDEFGABC format ac tertia diatessaron CDEF desuper, omnisque cantus hanc imitans in vocibus et litteris formulam de tertia diapason diatessaron constitutione iudicandus est, itaque uno tetrachordo paulo plus, paulo minus diapason superet.

¹¹Quarta denique constitutio diapason diatessaron ex quarta specie diapason DEFGABCD prodit et ex prima diatessaron DEFG superius, uti patet in hac figura quam hic subiecimus, et recipit omnem cantum qui litteras istas implet, earumve sicut in caeteris imitatur concinentiam.

(Figura in pagina 340)

then clearly a diapason remains. If you subtract the same interval from the upper register, another diapason reveals itself to you.

⁸There are, in all, four different systems of diapason plus diatessaron. The first of these arises out of the first species of diapason ABCDEFGA, and from the first diatessaron ABCD placed above it. Indeed, every melody will arise out of this system which follows this particular pattern, and which has a range which is more or less a diatessaron greater than the diapason.

⁹The second arises out of the second diapason BCDEFGAB and the second diatessaron placed above it. From this system comes every melody which possesses such a melodic pattern, as long as it contains, to a greater or lesser extent, the range of a diapason plus a tetrachord.

¹⁰The third is formed by the third diapason CDEFGABC, and the third diatessaron CDEF placed above it. Every melody which conforms to this pattern as regards its pitches and its letters must be classified under the diapason plus diatessaron system. Thus it exceeds the range of the diapason by more or less a single tetrachord.

¹¹Finally, the fourth diapason plus diatessaron system comes from the fourth species of diapason DEFGABCD, and from the first species of diatessaron DEFG added above it. This is made clear in the following diagram which I offer. This system embraces every melody which makes use of these letters, and which conforms to their melodic pattern, as in the other types.

(Diagram on page 341)

12His constitutionibus omnis quidem colligitur diapason varietas quaeque supra depingitur, nam, si bene perpenderis, duas quaelibet exprimit diapason maneries, prima quartam atque primam, sequens quintam et secundam, tertia tamen tertiam iungit et sextam, sed quarta quartam replicat cum septima diapason.

Haec quarta diapason diatessaron constitutio						Paranete hyperboleon	G
Haec tertia diapason diatessaron constitutio				Trite hyperboleon	F	Trite hyperboleon	F
		Nete diezeugmenon	E	Nete diezeugmenon	E	Nete diezeugmenon	E
Paranete diezeugmenon	D	Paranete diezeugmenon	D	Paranete diezeugmenon	D	Paranete diezeugmenon	D
Trite diezeugmenon	C	Trite diezeugmenon	C	Trite diezeugmenon	C	Trite diezeugmenon	C
Paramese	B	Paramese	B	Paramese	B	Paramese	B
Mese	A	Mese	A	Mese	A	Mese	A
Lichanos meson	G	Lichanos meson	G	Lichanos meson	G	Lichanos meson	C
Parhypate meson	F	Parhypate meson	F	Parhypate meson	F	Parhypate meson	F
Hypate meson	E	Hypate meson	E	Hypate meson	E	Hypate meson	E
Lichanos hypaton	D	Lichanos hypaton	D	Lichanos hypaton	D	Lichanos hypaton	D
Parhypate hypaton	C	Parhypate hypaton	C	Parhypate hypaton	C		
Hypate hypaton	B	Hypate hypaton	B	Haec secunda diapason diatessaron constitutio			
Proslambanomenos	A	Haec prima diapason diatessaron constitutio					

¹²Every variety of diapason described above is contained within the following systems, for if you consider the matter carefully, each of these systems contains two types of diapason species: the first system contains the fourth and the first diapason species; the second system the fifth and the second diapason species; the third system the third and the sixth diapason species; the fourth system however involves the fourth diapason species, again coupled with the seventh species.

			G	This is the fourth diapason/diatessaron system
		F	F	This is the third diapason/diatessaron system
	E	E	E	
D	D	D	D	
C	C	C	C	
B	B	B	B	
A	A	A	A	
G	G	G	G	
F	F	F	F	
E	E	E	E	
D	D	D	D	
C	C	C		
B	B			This is the second diapason/diatessaron system
A				This is the first diapason/diatessaron system

¹Capitulum octavum: ²Septem fieri posse varias de bisdiapason constitutiones.

³Descriptis superius septem diapason et quatuor diapason diatessaron constitutionibus, restat ut et de bisdiapason, quae maior illis est, et eas omnes in se continet, etiam aliquid tractemus, quales et quot esse valeant eius constitutiones, quosve cantus excipiant declarantes. ⁴Quis precor sciolus non intelligat nil esse bisdiapason quam simplex duplicatum? ⁵Nunc autem simplex diapason septem habere monstratum est constitutiones iuxta septem suas species, et quicquid ultra canitur, ipsa teste natura, novum non est sed replicatum, qua consequentia necesse est septem etiam habere posse varias bisdiapason constitutiones nec plus nec minus.

⁶Prima quarum erit ABCDEFGABCDEFGA, quae cantos magnos in se recipit harum litterarum formulam paulo plus, paulo minus adimplentes, nec unquam ab illarum harmonia quoquomodo discrepantes.

⁷Secundam autem BCDEFGABCDEFGAB demonstrant, et haec omnes cantus magnos intra se concipit ac retinet, harum videlicet formam litterarum totam occupantes paulo plus, paulo minus, nec illarum concinentiam deserentes.

⁸Tertia fit ex CDEFGABCDEFGABC quae, sicut aliae, cantus magnos habet has omnes litteras parum plus, parum minus operantes, earumque prorsus modulamina non relinquentes.

-
1. A 24r H 29v
 2. posse fieri A
 3. (de) bis(diapason) *supra lin* H
eius constitutiones *in marg* H
(cantus) ipsae (excipiant) *dele* H
 4. (sciolus) non *dele* H
 6. quoquomodo *in marg* H
 7. totam (occupantes) *supra lin* H

¹Chapter VIII²That there are seven different bisdiapason systems.

³Having described above the seven diapason systems and the four diapason plus diatessaron systems, it remains for us to deal to some extent with the bisdiapason, which is larger than the previous systems, and contains them all within itself. We should also point out the nature of these systems, and how many there can be, and what melodies fit them. ⁴I ask you, what person, however ill-informed, does not know that the bisdiapason is no more than a repetition of the single diapason? ⁵Now, I have explained that the single diapason possesses seven systems according to its seven species; whatever is sung beyond this range is not new, but a mere repetition, on the evidence of Nature itself. Consequently, it is necessary for the bisdiapason to be able to possess seven different systems, neither more nor less.

⁶Of these, the first involves the pitches ABCDEFGABCDEFGA, and accommodates melodies of an extended range; these melodies fill up the pattern formed by these letters to a greater or lesser extent, and in no way depart from their particular scale-pattern.

⁷The pitches BCDEFGABCDEFGAB reveal to us the second system, which takes in and contains all melodies which have an extended range, the ones at any rate which occupy the entire arrangement of these letters, to a greater or lesser extent, and do not depart from their melodic pattern.

⁸The third system arises out of the pitches CDEFGABCDEFGABC; this, like the others, contains melodies of extended range which make use of all these letters to a greater or lesser extent, and in no way depart from their melodic patterns.

⁹Quartam quoque DEFGABCDEF GABCD formare poterunt, in qua cantus magni toti locantur, qui litteras istas omnes habent et exercent paulo plus, intellige semper, aut paulo minus, ac illarum modulationem proseguendo non deserunt.

¹⁰Quinta quoque bisdiapason constitutio componitur ex EFGABCDEF GABCDE, cantus in se magnos excipiens, qui litteras istas omnes frequentare non desinunt, eorumve concinentiam in tonis scilicet ac semitoniis in diatessaron et diapente speciebus non relinquunt.

¹¹Quid ultra? Duae adhuc varias possem si vellem, hoc ritu formare bisdiapason constitutiones, verum quicquid desit in scriptura totum in sequenti clarum erit figura.

(Figura in pagina 346)

9. magni *om* A
 11. possem *scripsi* posse HA

⁹The pitches DEFGABCDEF GABCD will be able to form the fourth system, in which melodies of an extended range are contained in their entirety, ones which contain and make use of these letters –and always understand this–to a greater or lesser extent. They never, during the course of their progression, depart from the melodic pattern formed by these.

¹⁰The fifth bisdiapason system is made up of the pitches EFGABCDEF GABCDE; it takes unto itself melodies of an extended range which unceasingly move among all these letters. They do not abandon their melodic characteristics,[†] that is, in the position of the tones and semitones in the species of both diatessaron and diapente.

¹¹What more need I say? I could, if I wished, describe the other two bisdiapason systems in this way, but whatever is lacking in the text will be absolutely clear in the following diagram.

(Diagram on page 347)

¹²These systems below, though they are all double systems, nevertheless are identical in all respects to the seven simple diapason systems. The bisdiapason is nothing else but a duplication of the simple diapason system. It is in this way that the Greek tropes are related one to another, although the proslambanomenos is there repeated in each trope, and its progression is not natural, as it is here.²⁷

					G		
					F	F	
				E	E	E	
			D	D	D	D	
		C	C	C	C	C	
	B	B	B	B	B	B	
A	A	A	A	A	A	A	
G	G	G	G	G	G	G	
F	F	F	F	F	F	F	
E	E	E	E	E	E	E	
D	D	D	D	D	D	D	
C	C	C	C	C	C	C	
B	B	B	B	B	B	B	
A	A	A	A	A	A	A	
G	G	G	G	G	G	G	This is the seventh bisdiapason system
F	F	F	F	F	F	F	This is the sixth bisdiapason system
E	E	E	E	E	E	E	This is the fifth bisdiapason system
D	D	D	D	D	D	D	This is the fourth bisdiapason system
C	C	C	C	C	C	C	This is the third bisdiapason system
B	B	B	B	B	B	B	This is the second bisdiapason system
A	A	A	A	A	A	A	This is the first bisdiapason system

²⁷For the Greek tropes, see *De inst. mus.* 4,15 (341,19-21). Johannes describes these later, and see below *Pars prima* 3.9-10.

¹Capitulum nonum: ²Impossibile veram haberi de tropis, tonis sive modis notitiam et praefatas nescire constitutiones.

³Boetius in allegato superius quarto suae musicae libro, capitulo necnon eodem quarto-decimo, tropos tonos sive modos diffinit in haec verba: ⁴*Sunt ait tropi constitutiones in totis vocum ordinibus vel gravitate vel acumine differentes.*

⁵Vis videre quod ita sit? ⁶Figuras illas de constitutionibus diligenter aspice.

⁷Prima namque gravior est uno tono secunda, si rem iuste discusseris, et secunda tono similiter altior prima magisque acuta, sicque de singulis subsequentibus in hunc modum ad invicem comparatis quae se semper uno tono superant aut minori semitonio, seque praecedunt et subsequuntur. ⁸Ex quo quidem colligimus nil esse vel unquam fuisse tropos tam Graecos quam Latinos, tamque seculares quam ecclesiasticos nisi constitutiones illas, nilque rursum aliud constitutio quam consonantiarum iuxta Boetii diffinitionem coniunctio.

⁹Quod si verum est, immo quia verissimum est et clarius luce, quis poterit unquam de quocumque cantu cuius tropi sit toni sive modi iudicare, si non prius didicerit vocum constitutiones eleganter discutere? ¹⁰Nam si Latinus vocum non ignorans constitutiones canere Graecum aut barbarum senserit, siquidem etsi tropos Graecorum funditus ignoret ac notulas, poterit nihilominus cantum illum more suo describere, quoniam in qua specie diapason resonet, et quam de supradictis constitutionibus occupet de facili concipit.

1. A 25r H 30v
 2. verum A
 8. fuisse *in marg* H
 9. sit *om* A

¹Chapter IX: ²It is impossible to have a true knowledge of the tropes, tones or modes, and at the same time be unaware of the aforementioned systems.

³In the fourth book mentioned earlier, and in the same fourteenth chapter of his treatise on music,²⁸ Boethius defines the tropes, tones or modes in this way:

⁴'Tropes' he says, 'are systems which, in all their pitch arrangements, differ as regards the low pitches and the high.'²⁹ ⁵Do you wish to see that this is so?

⁶Examine carefully those diagrams which dealt with the systems. ⁷The first of these is a tone lower than the second, if you analyse the matter accurately; similarly, the second is a tone higher than the first and of a sharper pitch. The same applies to the following individual systems which are compared with each other in this way. Each one is always higher than the preceding one by a whole tone or minor semitone, and they precede and follow each other. ⁸From this we conclude that tropes, Greek as well as Latin, secular as well as ecclesiastical, are, and always have been, nothing other than those systems; furthermore, that the system is nothing other than the combination of consonances, according to Boethius' definition.³⁰

⁹If this is true—rather because it is perfectly true and clearer than the light of day—who will ever be able to decide to what trope, tone or mode any particular melody is assigned unless he has learnt to distinguish carefully the order of the individual pitches? ¹⁰For if a Latin who is aware of the order of pitches hears a Greek or a barbarian singing—even though he may be basically ignorant of the Greek tropes and notation—nevertheless he will be able to write down the melody in his own style, since he easily grasps the species of diapason in which it sounds, and into which of the aforementioned systems it fits.

²⁸Cf above *Pars prima* 3.7.4.

²⁹*De inst. mus.* 4,15 (341,21-22).

³⁰*De inst.mus.*4,15 (341,22-25): 'Constitutio vero est plenum veluti modulationis corpus ex consonantiarum coniunctione consistens quale est vel diapason vel diapason et diatessaron vel bis diapason'.

¹¹Et hoc quare? ¹²Quia tropi, toni sive modi fiunt ad bene placitum, soni vero species et constitutiones omnium sunt communes linguarum. ¹³Quid habent oro modi Graecorum sive tropi, quos describit Boetius, cum tropis, tonis sive modis ecclesiasticis, tam quatuor illis antiquis scilicet quam et octo modernis?

¹⁴Et tamen eadem sunt voces, eadem consonantiarum species, eadem etiam quas supra descripsimus—diapason, diapason diatessaron et bisdiapason—constitutiones. ¹⁵Haec autem in hoc capitulo dixerim, inferre volens quod in cantibus secularibus qui discerni nequeunt per ritum ecclesiasticum, sit ad huiusmodi constitutiones prorsus recurrendum.

¹¹And why is this? ¹²It is because the tones, tropes or modes occur as the composer chooses, but the pitches, the species and the systems are common to all languages. ¹³What, I ask you, have the Greek modes or tropes which Boethius describes, in common with the Church modes or tropes, that is, those which in the olden days were four in number, but which more recently have increased to eight?

¹⁴And yet the pitches are the same, as are the species of consonance, and also the systems which I have described above—the diapason, the diapason diatessaron and the bisdiapason. ¹⁵I would make this statement in this chapter with the intention of implying that, in the case of secular melodies which cannot be classified according to ecclesiastical use, we must certainly have recourse to systems of this type.

¹Capitulum decimum: ²Octo tropos esse Graecorum philosophorum
sive tonos sive modos.

³Ex illis itaque tam diapason quam diapason diatessaron et bisdiapason
constitutionibus, Graeci philosophi septem ad componendas cantilenas
instituere modos sive tonos, quos tropos appellaverunt iuxta septem diapason
species. ⁴Primus autem hypodorius nomen habebat, secundus hypophrygius,
tertius hypolydius, quartus dorius, quintus phrygius, sextus lydius, septimus
mixolydius secundum vocabula variarum nationum, uti refert Boetius, quae
plus uno quam altero gaudebant uti tropo suis videlicet moribus appropriato.
⁵*Neque enim fieri potest* ait Boetius in suae musicae prologo *ut mollia duris
dura mollioribus annectantur aut gaudeant, sed amorem delectationemque
similitudo conciliat.* ⁶Octavum vero Ptolomeus, grandis inter caeteros musicus,
ab ipsa chorda mese in nete hyperboleon extruxit, eandem utputa primam
diapason replicando, speciem cui nomen hypermixolydium dedit. ⁷Hos igitur
octo modos cupio breviter hic depingere potiusquam describere, quatenus
cunctis innotescat nostris cantoribus non per tropos ecclesiasticos suas ab
antiquo iudicasse cantiones cantus et cantilenas gentiles philosophos, cum non
adhuc esset ecclesia, nec adinventi per consequens huiusmodi tropi.

1. A 25r H31r
3. sive tonos *in marg* H
4. scilicet *pro* videlicet A
 uti² *scripsi* utique HA

¹Chapter X: ²That there are eight tropes, tones or modes which stem from the Greek philosophers.

³Out of the diapason, diapason plus diatessaron and bisdiapason systems therefore the Greek philosophers established seven modes or tones for the composition of melodies; these they called tropes, according to the seven diapason species. ⁴The first of these assumed the name hypodorian, the second, hypophrygian, the third hypolydian, the fourth, dorian, the fifth, phrygian, the sixth, lydian and the seventh, mixolydian according to the vocabularies of the different countries which, as Boethius relates, delighted in using one in particular rather than another, namely, the trope which was more in keeping with their own character.³¹ ⁵'For it is not possible' says Boethius in the prologue to his treatise on music, 'for what is soft to be joined to, or take pleasure in, what is harsh, and vice versa; it is similarity which produces love and pleasure'.³² ⁶Ptolemy, a musician of high stature amongst other musicians, constructed an eighth trope, beginning at the mese and extending to the nete hyperboleon, thereby repeating the first diapason species; to this he assigned the term hypermixolydian.³³ ⁷And so I prefer to sketch briefly these eight modes rather than describe them, in order that it may become a known* fact to all our singers that the Gentile philosophers from the very earliest times classified their melodies—or *cantus* or *cantilenae*—not according to the church tropes; for the Church did not exist at that time, and as a result, tropes of this kind had not been invented.

³¹*De inst. mus.* 1 (180).

³²*De inst. mus.* 1,1 (180,19-22)*

³³*De inst. mus.* 4,17 (345-348).*

⁸Discant ergo nostri moderni non posse nostros cantus adhuc gentiles, id est vanos et saeculares, per tropos ecclesiae discerni, cum profecto liberi sint, nec certis in locis sicut illi finire cogantur; ⁹quin potius iudicari debent quemadmodum illi veteres per species diapason et praescriptas vocum constitutiones. ¹⁰Gentiles enim alios quam illos octo non habuere tropos sive modos sive tonos ante nostri salvatoris adventum, nec ullam praeter a proslambanomeno in nete hyperboleon cum caeteris de medio chordis bisdiapason constitutionem, ita quod nulla fuit inter ipsos differentia, nisi tantum in notulis variisve mensuris et in acumine et gravitate, quod sequens figura probabit.

¹¹Quae quidem bisdiapason in quolibet modo totas alias in se, tam diapason quam diapason diatessaron, habet constitutiones, quod nostri patres ecclesiastici non ignoraverunt; ac ideo novum Deo modulandi genus adinvenientes non vanum neque lascivum, novos etiam modos, de quibus loco tractabitur congruo, non pro vanis cantibus, sed pro laude divina tantum, de praescriptis constitutionibus extruxerunt.

8. non posse nostros *in marg* H

10. ante *om* A
propter *pro* praeter A
cum *supra lin* H

⁸Therefore our modern singers must learn that it is not yet possible to classify our heathen melodies—that is, those which are vain and secular—according to the Church tropes, since these melodies are certainly free-ranging, and cannot be forced to end within certain limits like the ecclesiastical ones. ⁹Rather they should be judged according to the species of diapason and the previously mentioned pitch systems—in the same way as the ancient melodies. ¹⁰For the Gentiles possessed no other tropes, modes or tones before the birth of Our Saviour apart from these eight, and no other system apart from the double diapason system which extended from the proslambanomenos to the nete hyperboleon, including of course the intervening pitches. Thus it is a fact that there was no difference between them, apart from the different notation, or the different lengths of string in the individual pitches, and the difference in the pitch, as the following diagram will demonstrate.

¹¹Now this bisdiapason, in whatever mode, contains within itself the other complete systems*—the diapason and the diapason diatessaron—a fact of which our Church fathers were perfectly aware. For this reason, in their efforts to find a new way of singing to God which was not vain or wanton, they invented new modes from the systems mentioned above. These modes I will deal with in the appropriate place; they were not meant for profane melodies, but solely for divine praise.

¹²These are the Greek tropes or modes, which were also called tones, expressed in Greek characters and made clear by the Latin letters. They are put together by artifice rather than founded in Nature; they differ only in pitch, and appear totally alike. In Boethius however, different symbols distinguish them,³⁴ and the measurements of their string lengths were, I believe, absolutely different. Our Latin tropes are certainly created by Nature totally unlike one another, though arranged in a single system.

The hypermixolydian, the eighth Greek trope							A
The mixolydian, the seventh Greek trope					A	G	
The lydian, the sixth Greek trope				A	G	F	
The phrygian, the fifth Greek trope			A	G	F	E	
			A	G	F	E	D
		A	G	F	E	D	C
A	G	F	E	D	C	B	A
G	F	E	D	C	B	A	G
F	E	D	C	B	A	G	F
E	D	C	B	A	G	F	E
D	C	B	A	G	F	E	D
C	B	A	G	F	E	D	C
B	A	G	F	E	D	C	B
A	G	F	E	D	C	B	A
G	F	E	D	C	B	A	
F	E	D	C	B	A		
E	D	C	B	A			
D	C	B	A	The dorian, the fourth Greek trope			
C	B	A	The hypolydian, the third Greek trope				
B	A	The hypophrygian, the second Greek trope					
A	The hypodorian, the first Greek trope						

³⁴The symbols do not appear in Freidlein, but see *Bower/Boethius* p. 155.

¹Capitulum undecimum: ²Omne genus hominum canere posse per septem alphabeti sui litteras.

³Quaerere nos hic oportet Graeci quo ritu canant, quave notula pro quindecim illis vocabulis uti soleant, cum certum sit sub illis tonos ac semitonia male posse proferri. ⁴Quibus plane respondendum Graecos tempore Boetii varias adhuc per octo modos illos exercuisse notulas ad cantandum et diversos characteres, quae si nostris iterum servant temporibus, fateor verum, nescio. ⁵Unum tamen scio nullam esse nationem quae per septem alphabeti sui litteras quicquid velit canere non valeat, semel saltem ut in hac patebit figura replicatas. ⁶Nam et nos Latini totum quod canimus per ABCDEFG cum certis lineis et spatiis experimur et discernimus, quas tamen litteras semel et bis si necesse sit replicamus. ⁷Et quae gens oro similes ad loquendum ac scribendum vocales non habeat aut consonantes? ⁸Etsi certe diversi sint diversis in linguis characteres et apices, una tamen est ubique soni communitas et in prolatione virtus, utque de prima lingua sumam argumentum, non poterit Hebraeus inter aleph et beth proferre tonum, ac inter beth et coph, sicut et nos inter A B C, minus semitonium? ⁹Quod cum negari nequeat, constat id ipsum posse fieri non solum in Graeca lingua, sed etiam in aliis omnibus quae siquidem ab Hebraea totae derivatae probantur.

-
- | | |
|----|---|
| 1. | A 26v H 32r
sui alphabeti A |
| 4 | divisos <i>pro</i> diversos A |
| 5. | Unam <i>pro</i> Unum A |
| 7. | et <i>pro</i> ac A |
| 8. | divisi <i>pro</i> diversi A
(utque) de <i>om</i> A |
| 9. | omnibus aliis A
totae <i>in marg</i> H |

¹Chapter XI ²Every race of men can sing by using the seven letters of their own alphabets.

³At this point, we need to enquire into how the Greeks sing, and what notation they usually adopt for the fifteen names, since we know for certain that the tones and semitones can only be badly expressed under them. ⁴To which the response should clearly be that the Greeks, in the time of Boethius, still made use of different symbols throughout the eight modes for singing, and different letters too,³⁵ and I am not sure, I must confess, whether they still keep them nowadays. ⁵However, there is one thing I do know—that there is no nation on earth which cannot sing whatever it likes by making use of the seven letters of its own alphabet, repeated at least once as the following diagram will show.

⁶For we Latins too practise and distinguish everything that we sing by means of the letters A B C D E F G, coupled with certain lines and spaces: these letters we repeat once, and even twice if need be. ⁷Furthermore, I ask you, what nation does not possess similar vowels and consonants for the spoken and the written word? ⁸And even though there is no doubt that characters and supplementary symbols vary from language to language, the language of sound, and the virtue inherent in its production, are the same everywhere. That I might find proof of this in the original language: will not the Hebrew be able to produce a whole tone between aleph and beth, and a minor semitone between beth and coph, as we do between the pitches A B and C? ⁹This cannot be denied and this same fact can be established not only in the Greek language, but also in all the other languages, which are anyway known to be derived from Hebrew.

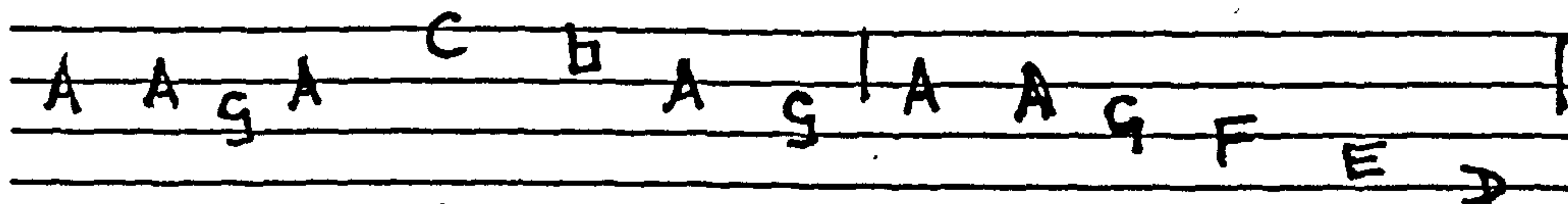
³⁵For 'character' in the sense of 'letter', cf. Theogerus *Musica* (GS 2 p. 183b): Ideo etiam signabant eas eisdem litteris, quibus et priores signantur, in eo differentibus, quod graves maiore, istae vero minore signantur caractere'.

¹⁰Thus, let the Latin letter A correspond to the Greek Alpha (α), B to the Greek letter Beta (β), the letter C corresponds to Kappa (κ), D is related to Delta (δ), the letter E in Latin becomes in Greek [Epsilon] (ε), F becomes Phi (φ), just as G corresponds to Gamma (γ). ¹¹Everyone must be aware that it is possible to sing, and write down any melodies, or *cantus* or *cantiones*, as much through these Greek letters as their Latin counterparts.

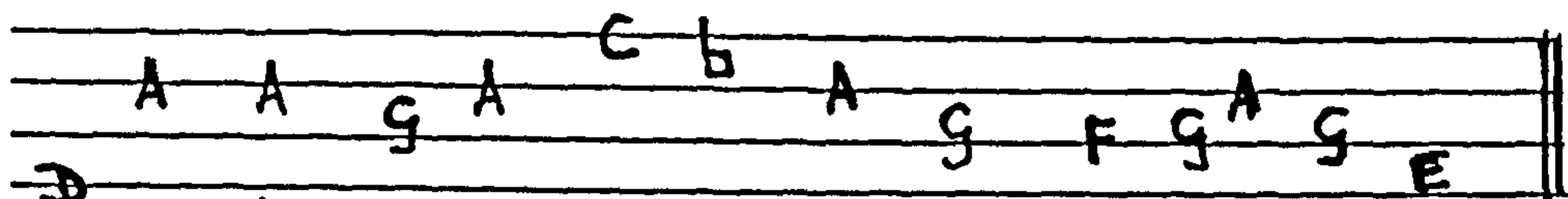
¹²I would not say these things concerning the Greek letters—whose beginnings I know—with the intention of teaching Latins to sing in Greek, but in order that I might show that the method of singing by means of the letters in any language is the best method. ¹³In order that this might be shown to be absolutely true, in the diagram which follows, I shall set out both the Greek and the Latin letters, distinguished by their appropriate lines and spaces, and projected through the nomenclature of the philosophers which applies to both. Then, by means of the same letters, I shall describe not a wanton, but a divine melody, to serve as an example for many.

¹⁴Here, it is perfectly clear that it is possible to sing by using the Greek, the Latin, or the Hebrew letters; these can be repeated once, twice, and also three times if need be, or if you wish, ad infinitum.

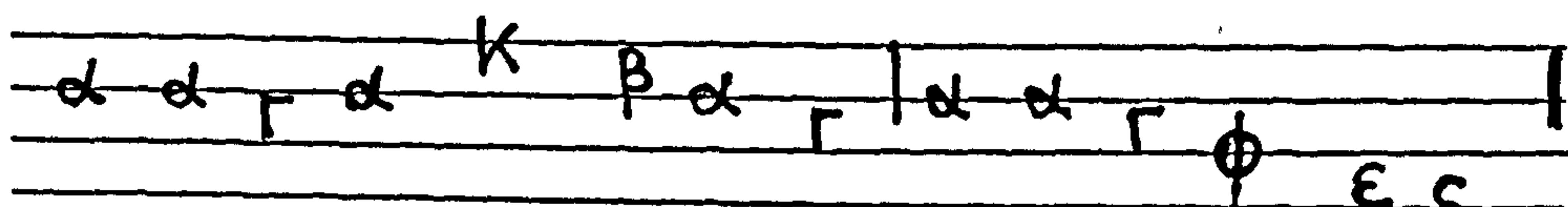
¹⁵Cantus Latine descriptus, qui sit exemplum omnibus:



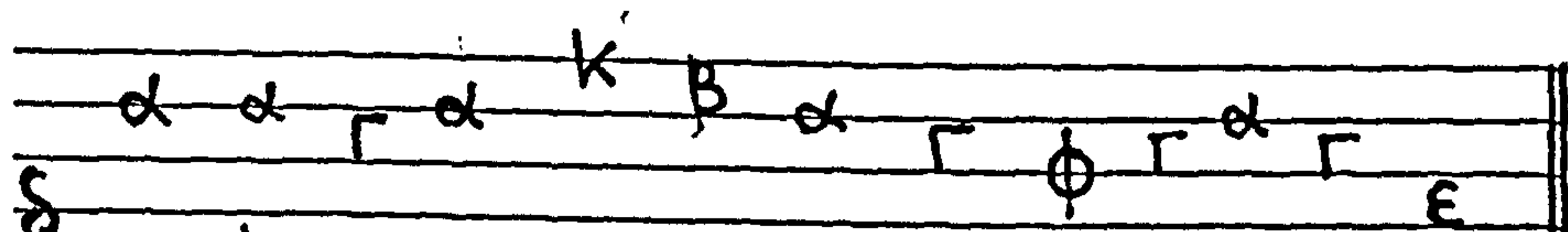
Ky-ri-e fons bon-i - ta - tis pa - ter in - gen - i - te



A quo bon-a cunc-ta pro-ced-unt el-e - i - son.



Ky-ri-e fons bon-i - ta - tis pa - ter in - gen - i - te



A quo bo-na cuncta pro-ced-unt el-e - i - son.

¹⁵Here is a melody set to Latin words, which can serve as an example for all melodies:

¹Capitulum duodecimum: ²Grandem esse distantiam inter musicum et cantorem.

³Expleta tandem huius opusculi parte prima, libet paululum de differentia cantoris et musici cum nostris conferre cantoribus, et ad quid haec omnia praescripserim paucis verbis explanare. ⁴Nam si velis esse nullam cantoris et musici differentiam, necesse est ut quemadmodum te fateri cogit omnem musicum esse cantorem vera consequentia rerum, ita fatearis quemcumque cantorem esse musicum, quod non est consequens sed falsissimum. ⁵Si sit enim omnis cantor musicus, quid de philomela dicendum? ⁶Pulchre canit, voces mirabiliter frangit, metitur tempus, et tamen non est musicus.

⁷Quemadmodum ergo non omnis eloquiorum Dei recitator theologus est, attamen theologum oportet esse verbi divini recitatorem, sic et non omnis cantor musicus est, quamquam verus non sit musicus quicumque canere nescit.

⁸Omnis ergo musicus cantor, sed non omnis cantor musicus. ⁹Alioquin non solum aviculae seu bestiae et bestiolae multae musici forent, aut cantantes per ecclesias infantes plurimi, sed et idiotae viri per universum mundum infiniti.

¹⁰De quo solet in proverbio dici: ¹¹*sicut iudex ad praeconem, sic musicus ad cantorem; praeco namque decreta iudicis proclamat et enuntiat, cur et quare fiant nesciens, iudex autem omnia novit; ¹²cantorque similiter tantummodu cantat, et quid cantet nescit, musicus vero totum diiudicat et discernit.*

-
- | | |
|-----|---|
| 1. | A 27v H 33r |
| 4. | esse ¹ <i>in marg</i> H
vera <i>supra lin</i> H
cantorem esse <i>in marg</i> H |
| 5. | de <i>om</i> A
philomela <i>scripsi</i> philomena HA |
| 8. | (ergo) cantor <i>dele</i> H |
| 9. | (bestiae) et besti(olae) <i>in marg</i> H
mondum A |
| 12. | (cantor) que <i>om</i> A |

¹Chapter XII: ²There is a vast difference between the musician and the singer.³⁶

³At last the first part of this little treatise is complete, and now I would like to take issue with our present-day singers regarding the difference between the singer and the musician, and to explain briefly why I have written all the things that I have. ⁴For if you wish there to be no difference between the singer and the musician, then it is necessary that, just as true logic compels you to admit that every musician is a singer, you then confess that every singer is a musician, which is not logical, but totally untrue. ⁵For if every singer is a musician, what must we say about the nightingale? ⁶She sings beautifully, modulates her pitches wonderfully and times her rhythms with care, but yet she is not a musician. ⁷Therefore, just as not every reader of God's utterances is a theologian, though on the other hand, every theologian needs to be a reader of the sacred word, so not all singers are musicians, though they are not true musicians who know not how to sing.

⁸Every musician therefore is a singer, though not every singer is a musician.

⁹If this were not the case, not only would many little birds and beasts and tiny creatures be musicians, in addition to the many small children who sing in churches, but also countless hosts of uneducated men throughout the world.

¹⁰There is a common proverbial saying on this subject: ¹¹'As the judge is to the herald, so the musician is to the singer'; for the herald proclaims and announces the decisions of the judge, but knows not the reasons for them, whereas the judge is knowledgeable in all these things'.³⁷ ¹²The singer too merely sings, and has no knowledge of what he is singing, but the musician understands and discerns it all.

³⁶Cf *De inst. mus.* 1,34 (223-225), and see below *Pars secunda* 2.1.10 for Guido's rhymes.

³⁷See *Lucidarium* 16.1.7-8.

¹³Quid ergo? Musici non sunt hodiernis temporibus nostri cantores, in sex syllabis et duodecim litteris, in quinque vel sex notulis, in variis cyphris ac diversis signis et characteribus, novos tota die cantus lascivos et vanos exquirentes, totque stultas adinventiones in suis quas non intelligunt proportionibus phantasticantes.

¹⁴Quippe qui norunt cantus, quos mensuratos appellant, cyphris ac novis phantasiis adeo plenos saepius fabricare, quod nec ipsi qui fecere valent illos ut plurimum enuntiare, quos nihilominus laudant in re tam vilissima quasi magnum quid egerint gloriantes. ¹⁵Quaenam haec vestra dementia cantores?

¹⁶Numquid haec tam nobilis scientia vestris erit subdita cyphris? Absit.

¹⁷Canite, quaeso, canite! ¹⁸Voces quantumlibet frangite, novas quotidie cantilenas suaves et tinnulas excogitate, tempus circa longas breves semibreves ac minimas consumite. ¹⁹Nam cum haec omnia perfecte nec aliud noveritis non dico quidem musici, sed neque veri cantores estis.

²⁰Haec omnia Namurci didiceram a cunabulis, quod est oppidum in Gallia, sed cum ad Italiam venissem, ac sub optimo viro magistro Victorino Feltrensi musicam Boetii diligenter audissem, qui me prius musicum aestimabam, vidi necdum veram huius artis attigisse practicam. ²¹Vera namque practica musicae, quam funditus tunc ignorabam, haec est: universa, quae scripta sunt hic et e puro fonte Boetii prorsus exhausta velle scire, quae vero supra tetigimus non ignorare.

-
- | | |
|-----|---|
| 13. | vano A |
| 14. | noverunt A
facere A |
| 15. | Quae nam <i>pro</i> Quaenam A |
| 18. | ac <i>om</i> A |
| 20. | oppidum est A
prius <i>supra lin</i> H |
| 21. | musicae <i>in marg</i> H
tunc <i>supra lin</i> H |

¹³What then do we conclude? Our present-day singers are not musicians: throughout the day they seek out new songs of a wanton and vain kind, while making use of the six syllables and the twelve letters,* the five or six notational signs, the variety of symbols, and different devices and characters. They also conjure up foolish innovations, the particular relationships of which they do not understand.

¹⁴For they know how to compose melodies which they call 'measured', which are quite often so full of strange symbols and novel ideas that very often not even can those who composed them can sing them, but nevertheless are full of their praise, boasting in this vulgar stuff as if they have achieved something great. ¹⁵What, singers, is this madness of yours? ¹⁶Surely, such a noble branch of knowledge should not be subservient to your peculiar signs? God forbid! ¹⁷Sing, I beg you, sing! ⁸Warble as much as you like, every day compose new sweet jingling tunes. Occupy your time with the longs, the breves, the semibreves and the minims. ¹⁹For since your knowledge of all this is consummate, but you know nothing else, so far from being musicians, you are not even true singers.

²⁰In Namur, which is a town in Gaul, I learnt of all these topics from my cradle. However, after I had come to Italy and carefully studied the *De Musica* of Boethius under that excellent teacher Vittorino da Feltre,³⁸ I realized that I, whom I earlier regarded as a musician, had not yet attained the true practice of this art. ²¹For this is the true practice of music, of which I was basically ignorant at that time: to wish to be familiar with the universal truths which are here written, and which are drawn from the unpolluted well of Boethius, and also to have knowledge of the topics we have touched upon above.

³⁸Cf above *Pars prima* 1. Preface 15

²²Verus ergo cantor erit qui totum, quod nunc canitur, ex hac vera practica procedere videbit. ²³Nam ut ad id veniam, pro quo tot et tanta praemissa sunt, hoc est ad angelicum seu ecclesiasticum cantum, quis cantorum scire non debeat omne quod canimus in ecclesia Dei vetus et novum ab ipso ritu vetustissimo, quem e Graeco transtulit Boetius, emanasse philosophorum, immo nil aliud esse vel unquam fuisse nec futurum esse quam id ipsum?

²⁴Hinc est quod secundam huius libelli partem quae de diversis in ecclesia canendi tractat usibus, clericis devoti ac viris religiosi qui, siquando forsan in illis novis haesitaverint, ad haec recurrere valeant vetera, certique sint musica quid sit, unde venerit, et quis primus cecinerit, sacra teste pagina.

²⁵EXPLICIT PRIMA PARS DE RITU CANENDI VETUSTISSIMO.

23. tantorum A
(vetustissimo) proce *dele* H
24. valeant recurrere A
caeterique *pro* certique A

²²The true singer then will be the one who will realize that everything which is presently sung stems from this true practice. ²³Now to come to that topic on account of which so many things of such significance have been previously said by way of preface, that is, the divine or ecclesiastical chant; every singer should realize that everything—old and new—which is sung in God's church springs from that most ancient scheme of the philosophers, which Boethius translated from the Greek: indeed, that nothing else is relevant, or ever was, or ever will be.

²⁴It is for this reason that I have dedicated the second part of this treatise—which deals with different practices of singing within the Church—to clerics and men of religion, who will have the opportunity to revert to these old topics whenever they feel insecure with the new, and can be certain about the nature of music and its origins, and who was the first to sing—facts to which Holy Scripture bears witness.³⁹

²⁵THE END OF THE FIRST PART, WHICH DEALT WITH THE ANCIENT WAY OF SINGING.

³⁹See above *Pars prima* 1.1.6. and Note.

¹INCIPIT SECUNDAE PARTIS DE DIVERSO RITU CANENDI PLANUM
CANTUM

²LIBER PRIMUS

³Vera quamquam facilis ad cantandum atque brevis introductio.

⁴Pauperibus Ecclesiae Dei clericis ac religiosis, Deo laudes concinere dulciter optantibus, Frater Johanninus, indignus Cartusiae monachus, salutem, ac illam quam mundus dare non potest pacem. ⁵Vetustos una die carissimi revolvens Ecclesiae Christi musicos, pium quendam inter illos Aretinum inveni monachum, nomine Guidonem, sic de modo canendi seu cantum docendi paucis his rhythmis tinnulis memorasse:

⁶ <i>Solis notare litteris</i>	<i>Optimum probavimus</i>
<i>Quibus ad discendum cantum</i>	<i>Nihil est facilius</i>
<i>Si frequentetur fortiter</i>	<i>Saltem tribus mensibus.</i>

⁷Quod re verum esse comprobans, statui non ut prius fratres meos Cartusienses docendo cantum fatigare, neque tot verborum ambagibus ultra sensus eorum aggravare. ⁸Haec ergo sine tot illarum mutationum deliramentis via brevis ad canendum.

⁹Nomina vocum Graeca:

Proslambanomenos, hypate hypaton, parhypate hypaton, lichanos hypaton, et caetera, prout quae sequitur continebit figura.

1. A 29r H 35r
2. PRIMUS LIBER A
3. quamque *pro* quamquam H
4. Johannes *pro* Johanninus A
6. frequenter A
7. tantum *pro* cantum A
8. mutationum *om* A
9. quae *om* A

¹HERE BEGINS THE SECOND PART OF THE DIFFERENT WAY OF
SINGING PLAINCHANT

²THE FIRST BOOK

³A short introduction to singing which is truthful and easy to grasp.

⁴I, your humble brother Johannes, an unworthy Carthusian monk, give greetings to the poor clerics and priests of God's Church, who desire to sing God's praise in harmonious tones; I wish upon them too that peace which the world cannot give. ⁵One day, my dearest friends, as I was leafing through the ancient musicians of our dearest Christ's Church, I discovered that one of their number, the pious monk, Guido of Arezzo, had written as follows concerning the method of singing, or of teaching singing, with these few ringing measures:

⁶If men for threemonth themselves apply,
Then for to sing no easier way can I
Commend than these letters solely
For to learn thereby.¹

⁷Discovering that this was in fact right, I decided not to bore my fellow Carthusians by teaching singing as I had done previously, and not to offend their sensibilities further by so much obscure terminology. ⁸Here then is a brief guide to singing which does not involve so many of the absurdities brought about by all those mutations.

⁹The names of the pitches in Greek:

These are the proslambanomenos, the hypate hypaton, the parhypate hypaton, the lichanos hypaton, and so on, just as the following diagram contains them.²

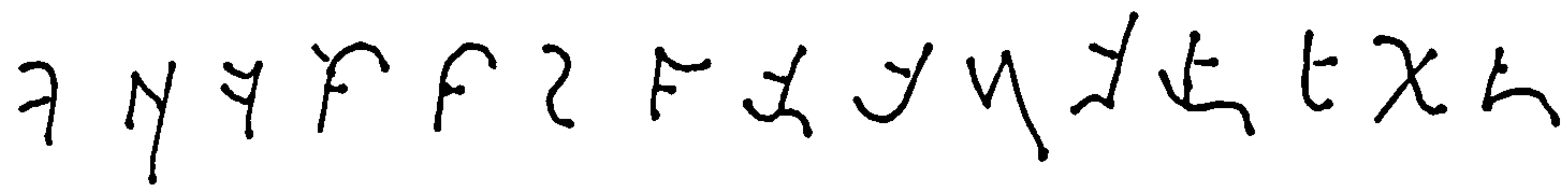
¹The rhymes are from Guido *Reg. rhyth.* (GS 2 p. 27), and see below 1.1.26, 2.1.22 and 2.4. 57.*

²The diagram to which Johannes refers must be that which follows sentences 25 and 26 below.

¹⁰Haec illa quindecim vocum nomina philosophorum, quae dumtaxat Sancta recepit in solo genere diatonico Mater Ecclesia, rei quidem pulchriter iuxta Graecam interpretationem appropriata.

¹¹Quibus notis usi sint antiqui patres:

Loco quorum utique nostri patres his quindecim usi sunt in ecclesia primitiva notulis, dividendo totum in graves, finales, superiores et excellentes, ac ritum pristinum Graecum in tonis et semitoniis omnino servantes:



¹²Nam quicquid ultra quindecim has notulas aut huiusmodi subiunctum aspicias, superfluum est, eodem attestante quod sic ait Guidone monacho:

¹³*His inquit addimus tetrachordum superacutarum; hae a multis superfluae dicuntur.* ¹⁴*Et alibi: Sunt qui addunt in acutis iuxta primam alteram, sed non patri Gregorio placuit haec lascivia, et moderni sapientes hanc neque commemorant.*

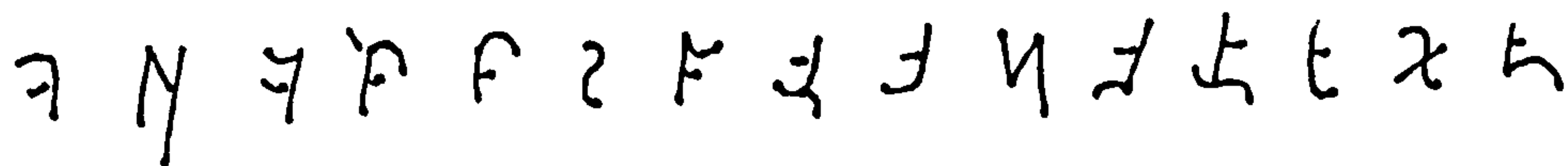
¹⁵*Quamvis ergo apud quosdam ipsa fiat vocula, penes multos iure tamen habetur superflua.*

10. Quibus..... patres post primitiva A
sunt *pro* sint A
12. Attestante Guidone monacho quod sic ait A
14. litteram *pro* alteram Gerbert (*Scriptores* Volume 2 p. 27)
15. caput *pro* apud A

¹⁰This diagram shows the fifteen pitch names, bestowed by the philosophers, which Holy Mother Church has rightly accepted only in the diatonic genus.³ The names were adopted beautifully to that purpose in accordance with the Greek version.

¹¹Which signs were used by the ancient fathers:

Instead of these terms, our early fathers made use of the following fifteen signs in the early Church, and divided the whole gamut into deep, final, superior and excellent pitches, while preserving the ancient Greek usage entirely in the order of tones and semitones:⁴



¹²For whatever you see beyond these fifteen pitches, or any similar appendage, is superfluous; the same monk, Guido, supports this view, as he speaks as follows: ¹³'To these' he says 'we add a tetrachord of the extra high pitches, which are said by many to be superfluous'.⁵ ¹⁴And in another place: 'There are those who add amongst the high pitches another beside the first: this wantonness displeased Pope Gregory, and contemporary writers in their wisdom choose to ignore it. ¹⁵And so, though this pitch appears in some authorities, it is rightly regarded by many as superfluous'.⁶

³See note 2 above.

⁴For the series of Daseian sings, see *Mus. ench.* p. 5

⁵Guido *Micrologus* 2,10 (p. 94). For the 'extra-high' pitch, see below 1.1.3.

⁶Guido *Reg. Rhyth.*(GS 2 p. 27). For an example of the gamut to high *e*, see Jerome *Tratatus* in CS 1 p. 21.

[I]

¹Quod quindecim illas tantummodo voces cantus ecclesiasticus occupet.

²Sunt ergo voces ad laudandum Deum non ultra quindecim, quas ita suprascriptus Guido per alphabeti nostri septem distinguit litteras, graves primas vocitans et acutas superiores: A grave, B grave, C grave, D grave, E grave, F grave, G grave, *a* acutum, *h* acutum, *c* acutum, *d* acutum, *e* acutum, *f* acutum, *g* acutum. ³Qua quidem consequentia vox necnon quintadecima dicetur *a* superacutum, et quicquid ultra sit post antiquos patres additum.

⁴De lineis et spatiis:

Sit autem A primum in spatio, quod et grave dicitur iuxta nostram practicam; *a* quippe secundum erit in linea, quod et acutum est, et *a* superacutum in spatio similiter. ⁵Caeterae vero litterae se sic habebunt invicem quae probantur esse similes, ut B *h*, C *c*, D *d* cum reliquis. ⁶Hi sunt nostri termini quos oculo contemplantes per tonum integrum ac dulce minus semitonium distinguere debemus, ita quod a spatio semper in lineam et a linea in spatium de duobus enuntietur alter, dicendo A *h* tonum, *h* C semitonium, C D tonum, D E tonum, E F semitonium, F G tonum, G *a* tonum, tam in gravibus quam in acutis ac superacutis litteris.

⁷De tono:

Tonus autem est illud spatium quod in monochordo resonat in omni primo dimensae chordae passu novem passuum, qui cum duas tantum occupet voces,

1. A 29r H 35v
 2. supradictus *pro* suprascriptus A
 7. autem *in marg* H

[1]

¹An ecclesiastical chant occupies a range which consists only of these fifteen pitches.

²The pitches then which are used for God's praise do not exceed fifteen; Guido—about whom I have written above⁷—classified these by means of seven letters of our own alphabet. He called the first set of pitches 'low', and the upper ones 'high', as follows: low A, low B, low C, low D, low E, low F, low G, high *a*, high *b*, high *c*, high *d*, high *e*, high *f*, high *g*.⁸

³Consequently, the fifteenth pitch *a* will be called 'extra-high', as also any other pitch which was added after the time of the ancient fathers.

⁴The lines and spaces:

Let us place the first A in a space, that is the pitch which in our usage we call low. Then the second *a*, that is, the high pitch, will be on a line, and similarly, the extra high *a* will be in a space. ⁵The other letters which are shown to be similar will have the same relationship: B *b*, C *c*, D *d* and so on. ⁶These are our boundaries, which we ought to recognise by sight as the steps of the whole tone and the sweet-sounding minor semitone, so that, as we move from a space to a line, and from a line to a space, always one of the two is named; we say that from A to *b* is a tone, from *b* to C is a semitone, from C to D is a tone, from D to E is a tone, from E to F is a semitone, from F to G is a tone, and from G to A is a tone. The same applies in the higher register and also in the extra-high as well as in the low.

⁷The tone:

The tone is that interval which sounds on the monochord in every first division of the nine on the measured string. Since the tone occupies only two

⁷See above *Pars secunda Liber primus* Preface 12-15.

⁸For Guido's gamut, see *Micrologus* 2, (93-4).

unum nec plus habet intervallum, et a semitonio minori, quod est pars minor de duabus suis partibus, sola plena prolatione differt.

⁸De minore semitonio:

Est namque minus semitonium minor illa pars toni divisi quam in monochordo metiri potes leviter, duas habens uti tonus voces ac solum inter \flat C vel E F tam graves quam acutas occupans intervallum, solaque dulci prolatione quidem ab integra toni durave resonantia differens.

⁹De tribus tonis male sibi succedentibus:

Porro duo toni semper a natura post se vel ante se vel inter se minus habere semitonium appetunt; quod profecto diligenter a Graecis philosophis observatum est. ¹⁰Attamen secunda diapason species habere locum a \flat gravi ad \flat acutum non potuit nisi duobus illis tonis qui sunt a F gravi in acutum α tonus adhuc succederet ab eodem α in \flat sequens acutum. ¹¹Hic est proculdubio tritonus discors vehementer, ob quem annullandum inter A et \flat quadrum ponitur hoc b rotundum. ¹²Fitque minus ab A in b rotundo dulceve semitonium, et ab ipso rotundo in \flat quadrum maius dissonans ultra modum. ¹³Et cui dubium quod hoc ritu tritonus immutetur in tertiam perfectae diatessaron speciem?

¹⁴Si Γ gamma Graecum aut \flat superacutum nobis occurrerit, quid agendum?

9. sibi male A
 10. grave F A
 succederent A
 12. minus *supra lin* H

itches, it contains one, and only one, interval. Also, it differs from the minor semitone, which is the smaller of its two divisions, only by its fuller range.⁹

⁸The minor semitone:

The minor semitone is that smaller part of the whole tone division which you can easily measure on the monochord. It involves, like the whole tone, two pitches; it occupies only the interval between \flat and C, and between E and F, both in the low and high registers, and is different from the integral or hard-sounding tone only by its soft progression.


⁹The evil of the three whole tones which follow on one another:



Further, two whole tones always strive naturally, either after or before them, or indeed between them, to have a semitone, and this was a fact which was carefully observed by the Greek philosophers. ¹⁰However, the second species of diapason could not maintain its position between the low and high B's unless a whole tone immediately follows on those two tones between low F and high α —that is, from this same α to its immediate neighbour, high \flat .

¹¹There is no doubt at all that this is the dreadful dissonance called the tritone. In order to be rid of this, the round b is placed between the A and the square \flat . ¹²As a result, the distance of a minor or sweet-sounding semitone separates the A and the round b; from this latter pitch to the square \flat lies the dissonant major semitone, an interval which is unacceptable. ¹³It should then be perfectly clear that in this way the tritone is transformed into the third species of perfect diatessaron.

¹⁴If ever we are confronted with the Greek letter Γ (Gamma) or with the very high \flat , what should we do?

⁹For 'prolatio' see below 1.4.18.

¹⁵Quod si quando sub A gravi quandam additam inveneris notam aut litteram, scito quod sit Γ gamma vel G Graecum, ad quod descendere debes ab A primo sive gravi per tonum integrum, ac si descendas ab *a* secundo vel acuto in G grave sive primum. ¹⁶Hanc etenim vetustissimi post beatum Gregorium musici posuere sub septima notulam  loco cuius G cecidit in ordine litterarum, reddens ad G grave diapason consonantiam, sed vocitatum est gamma, quod sic Graece depingitur Γ, nec est aliud quam G Graecum, absurdum quippe fuerat ante nostrum A nominare G Latinum.

¹⁷Si vero quasdam ultra quintam decimam additas inveneris notulas, quis non videt quod ad instar acutarum litterarum te regere per omnia debeas? ¹⁸Nam sicut ab F gravi scandens in  quadrum evadere nequis nisi per interpositum b rotundum praefati tritoni duritiam, ita si conscendas ab *f* acuto gradatim in  superacutum. ¹⁹Hortor itaque vestram dilectionem, o spiritu pauperes tam clerici quam religiosi, non a modo sensus vestros in *ut re mi fa sol la* tam tenaciter occupare, neque potissimum circa vanas illas non dico vocis in vocem sed ambagis in ambagem mutationes tempus pretiosum atterere, sed mox Deo canere dulci concordia volentes, his quindecim visui subiectis litteris, tonos primum ac minora semitonia diligenter inquirere, certi quod quicquid nota dicitur aliquid denotare debet.

16. vetustissimi A
(nec) *add* A
18. praefati A
19. Hortorque A
tonos *om* A

¹⁵If ever you find, under the low A, a certain additional pitch or letter, be aware of the fact that it is the letter Γ (Gamma) or Greek G; from the first or low A you must descend a whole tone to this additional pitch, as if you were descending from the second or high *a* to the first or low G. ¹⁶For it was after the time of Pope Gregory that the musicians of old placed under the seventh position this symbol Υ ; in the corresponding place, G occurred in alphabetical order, producing the consonance of a diapason in relation to the low G. But this letter was called Gamma, which is drawn in Greek as follows –Γ–being none other than the Greek G, for it would have been absurd to name the Latin G before our A.

¹⁷If then you discover certain additional pitch-symbols which go beyond the fifteenth, who is not aware of the fact that you need, after the pattern of the high pitch-symbols, to organise yourself in all things? ¹⁸For if you progress upwards from low F to square f , you cannot avoid the dissonance of the tritone I have mentioned, unless you place a round b in between; the same applies when you progress stepwise from high *f* to the very high f . ¹⁹I encourage you then, my beloved brethren, those of you who are poor in spirit,¹⁰ both clerics and religious, from now on not to involve your minds so relentlessly in *ut re mi fa sol la*, and especially not to waste precious time in concerning yourselves with those vain transpositions, not, I should say, from one individual pitch to another, but from one obscurity to the next. Rather, because of your wish to sing God's praise in sweet harmony before long, with the use of these fifteen letters set out before your eyes, first carefully establish the position of the tones and minor semitones, in the certain knowledge that whatever is called a pitch must denote something.

¹⁰Cf *Sec.Matt.* 5,3: Beati pauperes spiritu.

²⁰Idcirco notae quadrae, quibus nunc utimur, nil praeter illas septem repraesentant litteras ABCDEFG scilicet tam graves quam acutas ac superacutas. ²¹Quod procul dubio per horam ad plus attendendo capietis, sicut a me capiunt fratres mei Cartusienses. ²²Moxque dicendo per singulas illas notas quadras A vel B vel C vel D sicque de caeteris et, ut dixi, voces elevando per tonos et semitonia seu deprimendo, tribus assidue saltem mensibus canere poteritis planum cantum, absque tot mutationibus satis competenter. ²³Verum quia magis valere solent ad exhortandum exempla quam verba, totum ecce quod dictum est in hac colligo figura.

(Figura in pagina 382)

20. caeteri *pro* certū A
 propter *pro* praeter A
 scilicet *om* A

²⁰For this reason, the square notes which we now use represent nothing more than those seven letters ABCDEFG—that is in the low, high and very high registers. ²¹There is no doubt that you will grasp these ideas by giving your attention to them for an hour at the most, in the same way as, with my assistance, my brother Carthusians grasp them. ²²Soon, by using the names ABCD and so on for all those individual square notes, and raising and lowering your voices through the tones and semitones, within three months, at least with diligent practice on your part, you will be able to sing plainchant perfectly competently, and without so many mutations. ²³In fact, since examples speak louder than words in exhortation, in the following diagram I, as you see, summarise everything I have just discussed.

(Diagram on page 382)

25Haec his rhythmis Guido monachus:

26Solis notare litteris
Quibus ad discendum cantum
Si frequentetur fortiter

Optimum probavimus
Nihil est facilius
Saltem tribus mensibus.

Nete hyperboleon		
	Tonus	
Paranete hyperboleon		
	Tonus	
Trite hyperboleon		
	Semitonium	
	minus	
Nete diezeugmenon		
	Tonus	
Paranete diezeugmenon		(*)Nete synemmenon
	Tonus	Tonus
Trite diezeugmenon		(*)Paranete synemmenon
	Semitonium	Tonus
	minus	
Paramese		(*)Trite synemmenon
	Tonus	Semitonium
		minus
MESE		MESE
	Tonus	
Lichanos meson		
	Tonus	
Parhypate meson		
	Semitonium	
	minus	
Hypate meson		
	Tonus	
Lichanos hypaton		
	Tonus	
Parhypate hypaton		
	Semitonium	
	minus	
Hypate hypaton		
	Tonus	
Proslambanomenos		

27Istae tres notae rubeae sunt aliis post Gregorium additae.

26.

frequentetur II

27.

rubeae notae sunt post Gregorium aliis additae A

(*) rubeae notae

²⁵Brother Guido said the same in these rhymes:

²⁶If men for threemonth themselves apply,
Then for to sing no easier way can I
Commend than these letters
For to learn thereby.¹¹

²⁷These three red notes were added to the rest after the time of Gregory.

¹¹See above *Pars secunda* 1.1.6.

[II]

¹Hac sola posse figura quemvis addiscere cantum seu docere faciliter, verumtamen facilius magisque tenaci memoria, si sic ordinetur in manu sinistra.

²Applica nunc ad hanc figuram manus tuae sinistrae palmam, et disce Guidonem, causa brevitatis et memoriae labilis, A primum in prima iunctura pollicis locasse, dein alias quae sequuntur litteras quam decenter de iuncturis in iuncturas sibi succedentes disposuisse. ³Gamma vero, quod asserit a modernis sui temporis additum, in eiusdem summitate pollicis iure locatum est. ⁴Equidem aliquid novi fabricare nolo, sed veram huiusce rei doctrinam brevem ac perfacilem, qua nos pius ille Dei servus canere docet per litteras innovare contendo. ⁵Tam decens oro tantique monimentum ingenii, quo levamen nobis pro libello portabili traditur, vilipendendum? Absit.

⁶Haec illi nostrae subiunxerim figurae, carissimi, vobis ostendere volens paucis illis praemissis quod per illam solam attendendo tonos ac semitonia discere modulari Deo valeatis breviter ac faciliter, absque tot verborum ambagibus, totve nihili quae vos ita fatigare solent illis litterarum et non vocum mutationibus. ⁷Nam si quis manus non habeat, ergo cantum discere non potest? ⁸Id credere stultum est.

1. A 30r H 37r
si om A
5. levamen scripsi leva HA

[II]

¹It is by means of this diagram alone that it is possible for anyone to learn or to teach singing easily; however, it will be easier, and indeed more easily memorized, if it is arranged like this on the left hand.

²Now place the palm of your left hand over this diagram, and learn that Guido, for the sake of brevity, and to avoid lapses of memory, placed the first A on the first joint of the thumb, and thereafter arranged the rest of the letters which follow in proper order from joint to joint as they succeed each other.¹²

³The letter Gamma, which he says was added by his contemporaries, was rightly placed at the top of the same thumb.¹³ ⁴Naturally, I do not wish to introduce anything new to this topic; rather I am anxious to breathe fresh life into the short and easy but nevertheless true, teaching of this particular subject—for it is a method by which that holy man, as God's servant, by means of the letters, teaches us to sing. ⁵I ask you, should we look down on such a pleasing *aide-memoire* of such great ability, in which, like a little portable book, aid is handed down to us? God forbid.

⁶My dearest friends, I would append this to that diagram of ours, because I am anxious to show you, having said that in preparation, that you can, by paying attention to the tones and the semitones, by that diagram alone, learn to sing to God quickly and easily. All those verbal obscurities will be absent, as well as all those silly things which tire you out so through their changes of letters but not of pitches. ⁷For if anyone has no hands, does it mean that he cannot learn to sing? ⁸What a foolish thing to believe!

¹²Sigebert de Gembloux credits Guido with the invention of the Hand, and see *De viris illustribus* in *PL* pp. 160 and 204.

¹³See Guido *Micrologus* 2, 2 (p. 93): In primis ponitur G graecum a modernis adiunctum.*

⁹Attamen, ut dixi, voces istae diligenter ibi prius examinatae locentur in manu sinistra, nam et sensus capacior erit, magisque tenax memoria. ¹⁰Quodsi quem vestrum delectat ultra procedere, quaeve de tono fiant et minori semitonio rimari velit ac intelligere, breviter ut sciam illa declarare nitar quo quisque vires ingenii sui probare valeat. ¹¹Hucusque rudibus ergo sufficiat ad discendum cantum, acutis autem ingeniis nequaquam satis erit.

10. et *om* A
sui ingenii A
11. aut *pro* autem A

⁹However, as I have said, let us place carefully there on the left hand those pitches we have previously looked at, for then our understanding will be increased, and our memory made more retentive. ¹⁰But if any one of you would like to proceed further, and is anxious to examine and understand those matters which are to do with the tone and minor semitone, I shall try my best, within the limits of my knowledge, to explain these things briefly so that each of you has the opportunity to prove the strength of his ability. ¹¹For the learning of singing, what I have said so far must suffice for uneducated minds but in no way will it satisfy the needs of sharp intellects.

[III]

¹Quae sint litterae musicales, quae syllabae vel dictiones.

²Sicut apices alphabeti sunt litterae grammaticales nominati, sic et hi, de quibus sermo nobis est, quindecim phthongi sive soni possunt litterae musicales non incongrue vocitari. ³Nam ex illis syllabae fiunt ad loquendum et dictiones, ex his vero toni semitonia ditoni semiditoni diatessaron diapente, sicque de reliquis ad cantandum. ⁴De quibus utique Guido sic ait: ⁵*Habes itaque sex vocum consonantias, id est, tonum, semitonium, ditonum, semiditonum, diatessaron ac diapente*. ⁶Et rursum: *In nullo enim cantu aliis modis vox voci coniungitur vel intendendo vel remittendo*. ⁷Haec Guido satis allegatus.

⁸Ex quo patet illum non sex illas excogitasse syllabas pro rei veritatis quae tonus est cum reliquis abolitione, sed pro parva puerorum ac rudium velut quodam baculo sustentanda capacitate, cum praesertim, ut audis, tonos ita commendet ac semitonia, nihilque penitus scribat de tot illis mutationibus et verborum ambagibus, ubi fatetur in certis suis epistolis se reperisse quidem *ut re mi fa sol la*. ⁹Crassa necnon delirantis hic Marchetti claruit ignorantia, qui tam facundum virum in verbo capere voluit, eo quod ibi tonum ac semitonium esse consonantias dixerit.

-
- 1. A 30v H 37r
 - 6. ullo *pro* nullo A
 - 8. (veritatis) abolit *dele* H
 - 9. (Crassa) ut *dele* A
haec *pro* hic A10.

[111]

¹What musical letters are; what the musical syllables and words.

²Just as the shapes in the alphabet are called 'grammatical letters', so these fifteen pitches or sounds, which are the subject of our discussion, can quite rightly be called 'musical letters'. ³For it is from the former that syllables and words are born which can be used in speech; from the latter come forth the tones, the semitones, the ditones and the semiditones, the diatessarons, the diapentes, and all the rest of the material which is used in singing.¹⁴

⁴Concerning these, Guido definitely says:

⁵And so you have six melodic consonances, namely the tone, the semitone, the ditone, the semiditone, the diatessaron and the diapente'.

⁶And again: 'For in no melody can other ways be adopted of joining one pitch to another, whether the pitch be raised or lowered'.¹⁵

⁷This is the end of the quotation from Guido, whom I have quoted often enough.

⁸From this it is clear that he did not invent the famous six syllables in order to do away with the essence of truth inherent in the tone and the rest; rather his aim was to support, as if with a staff, the limited knowledge of youthful and uneducated minds, especially as he thus recommends, as you hear, the use of the tones and semitones, and writes absolutely nothing about all those changes and verbal obscurities when he claims, in certain of his letters, that he had invented *ut re mi fa sol la*. ⁹The crass ignorance of the raving Marchetto shone forth here when he wished to catch out in his words such an eloquent gentleman on the grounds that he there referred to the tone and the semitone as consonances.¹⁶

¹⁴For Johannes' grammatical analogies, see above *Pars prima* 1.2.12 and 1.3.4.

¹⁵*Micrologus* 4,12-13 (p. 105).

¹⁶*Lucidarium* 9.1.12: Patet igitur ignorantia Guidonis, qui has coniunctiones, que, ut predicatur, membra consonantiarum sunt, esse consonantiarum species asserebat.

¹⁰Indocte disce Marchette quod tuis tantum vocabulis non sint scientiae subiectae.

¹¹Nam et Boetius, quem legisti nec intellexisti, tonum non esse consonantiam asserit, sed ultra paululum diatessaron diapente et tonum consonantias vocat.

¹²O Marchette, magna nimis amentia tua, qua tu te musicum ostentare volebas qui fere sine litteris cantor verus non fueras, nam et tuum ordinare nescisse tenebrosum fateris Lucidarium, si non a quodam adiutus fratre fuisses.

¹³Quid de te concludam? ¹⁴Loquela tua tam inculta te male cultum fuisse demonstrat. ¹⁵Haec dixi ne tuam omnino nescisse videar inscientiam; his tamen relictis, ad id quod coeptum est redeamus, de coniunctione vocum.

¹⁶De ditono ac semiditono:

Quid oro ditonus est nisi duplicatus tonus, et quid semiditonus nisi tonus integer minori semitonio iunctus? ¹⁷Qui quoniam omnis aggregatio vocum habet minus unum intervallum quam habeat voces, ambo tres phthongos habent sive sonos ac duplex intervallum.

10. sint *om* A
 11. non *pro* nec A
 12. adiuctus A
 fratre *in marg* H
 14. inoculta A
 15. nec *pro* ne A

¹⁰Ignorant Marchetto! Learn this—that branches of knowledge are not subject to your vocabulary alone. ¹¹For Boethius, whom you have read and not understood, claims that the tone is not a consonance, but a little later on, he refers to the diatessaron, the diapente and the tone as consonances.¹⁷ ¹²O Marchetto, what excessive madness is yours in which you longed to reveal yourself as a musician, yet being almost illiterate? You were hardly a true singer, for you admit that you did not know how to organise even your own obscure *Lucidarium*, had you not been helped by a certain monk.¹⁸

¹³What am I to conclude about you? ¹⁴Your discourse is so uneducated that it shows you to have been badly educated. ¹⁵I have said these things lest I seem totally unaware of your lack of knowledge. However, let us leave these topics, and return to the topic we began to discuss—that is, the combination of sounds.¹⁹

¹⁶The ditone and the semiditone:

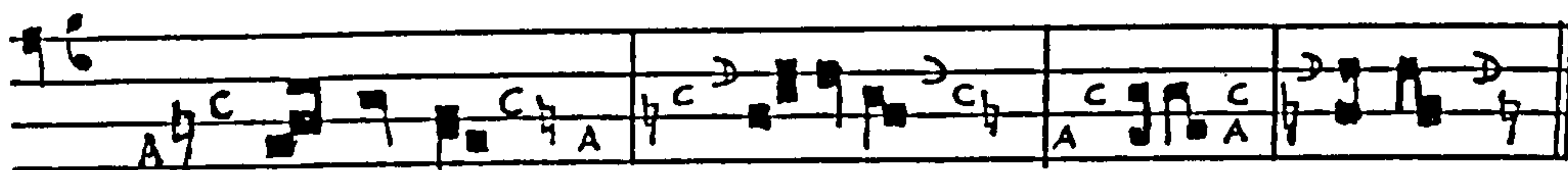
I ask you—what else does the ditone involve but a mere duplication of the tone? What is the semiditone but a combination of the whole tone and the minor semitone? ¹⁷Since every combination of sounds possesses one less interval than it does pitches, both these intervals have three *phthongi* or pitches, and involve a double interval.

¹⁷Boethius' claim does not appear in Freidlein, but see *Bower/Boethius* p. 22 f 84: TONUS VERO SESQUIOCTAVA PROPORTIONE CONCLUDITUR, SED IN HOC NONDUM EST CONSONANTIA.....'sed ultra paululum': *De inst. mus.* 1,16 (201,4-202,2).

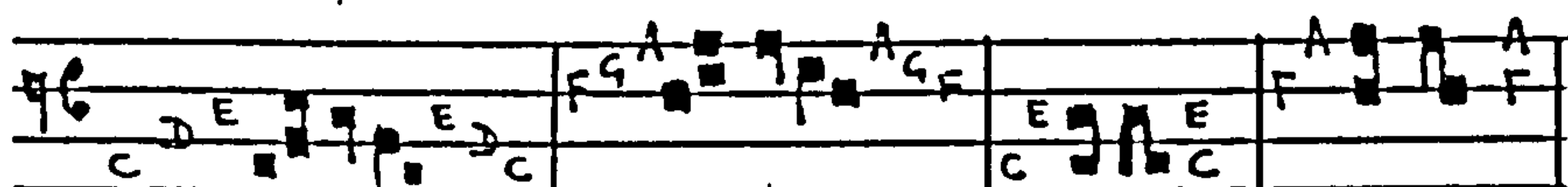
¹⁸See *Epistola Marchetti da Padua* 6 (this precedes *Lucidarium* in Hellinger's ed.), where Marchetto acknowledges the help he received from Brother Syphans of Ferrara: *Infra scriptum opus composui adiuvante me Fratre Syphante de Ferraria Ordinis Predicatorum.*

¹⁹Pseudo-Odo uses the phrase 'coniunctio vocum' with reference to intervals, and see *Dialogus* in GS 1 p. 225.

¹⁸In prolatione tamen differunt uti tonus a quo nascuntur et minus semitonium, quod hic patet per exemplum.



¹⁹Hi ditoni sunt ac semiditoni, suis in omnibus intervallis dispositi, tamque per litteras quam et quadras notulas hic rite descripti:



²⁰De diatessaron:

Diatessaron prima trium perfectarum atque simplicium consonantiarum, ea est quae resonat in monochordo primis omnibus divisae chordae quatuor aequalium passibus, dicta quidem a *dia* quod est *de* vel *per*, et *tessara*, *quatuor*, eo quod voces quatuor habeat, intervalla tria tresque varias species; cumque constet ex supradicto ditono et minori semitono, vel ex ipso semiditono cum integerrimo tono, duos semper habet tonos ac minus, ut hic patet, semitonium.

²¹Haec prima diatessaron in suis intervallis differentia, quae procedit e tono semitono et tono, nec habetur nisi ab A in D vel a D in G, et e converso:

20. (eo) et *add* A
 21. (vel) A D (in G) A

¹⁸But, as far as range²⁰ is concerned, they differ, as do the tone and minor semitone from which they spring. This is made clear in the following example:



¹⁹These are ditones and semiditones, here set out in all their different intervals, and are duly described here, not only by means of letters, but also by means of square notation:

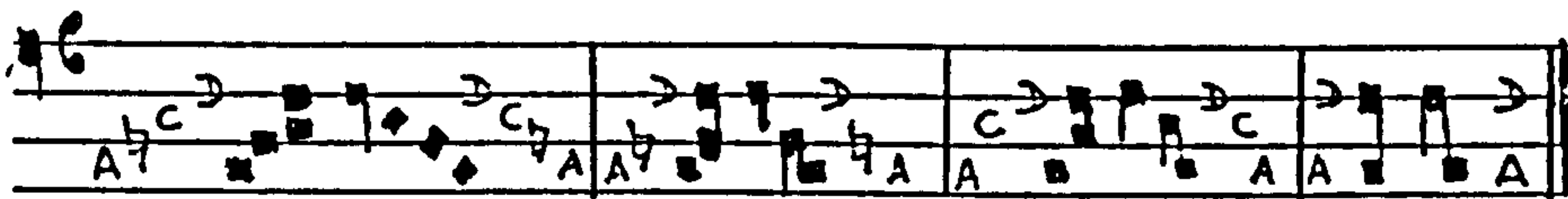


²⁰The diatessaron:

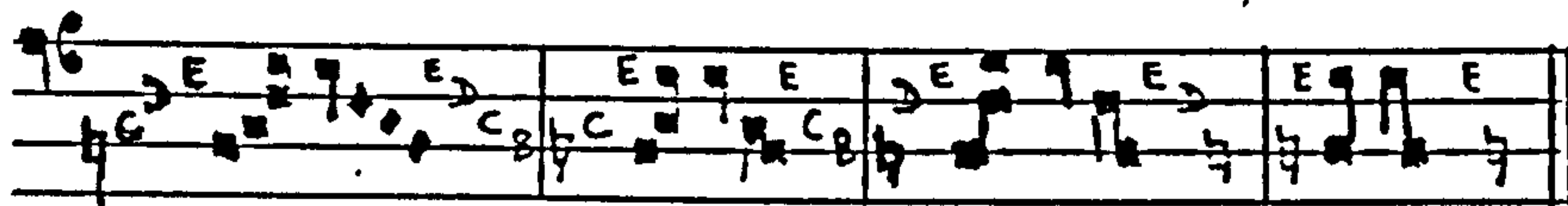
The diatessaron is the first of the three perfect and simple consonances. It is the interval which sounds on the monochord at every first of the four equal divisions on the measured string. It derives its name from the Greek *dia* which means *from*, and also from *tessara*, which is the Greek for *four*, because it has four pitches, three intervals and three different species; and since it is made up of the ditone, which I have just mentioned, and the minor semitone, or from the semiditone and the whole tone, it always contains two tones plus a minor semitone, as is made clear here.

²¹Here is the first variety of diatessaron with its particular order of intervals. It involves the progression tone, semitone, tone. It is contained only between the pitches A and D, D and G, and vice-versa:

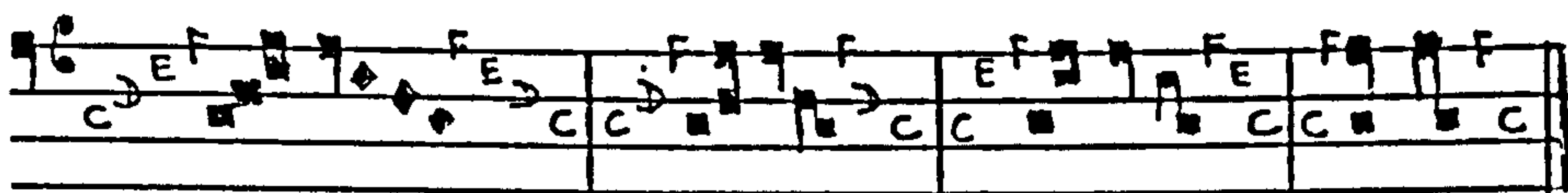
²⁰For 'prolatio' in the sense of 'range', cf Johannes Afflighemensis *De musica* p. 110: Notandum quod modi ita sunt distincti ab invicem, ut ex ptrolatione ipsorum expertus cognoscit musicus quem tonum illi cantui imponere priusquam ipsius finem perspiciat.



²²Haec per semitonium, tonum et tonum secunda, quae tantum habetur \flat in E vel a
E in A:



²³Haec a tono, tono et semitono differentia semper erit a C in F aut a G in C loco
tertia:

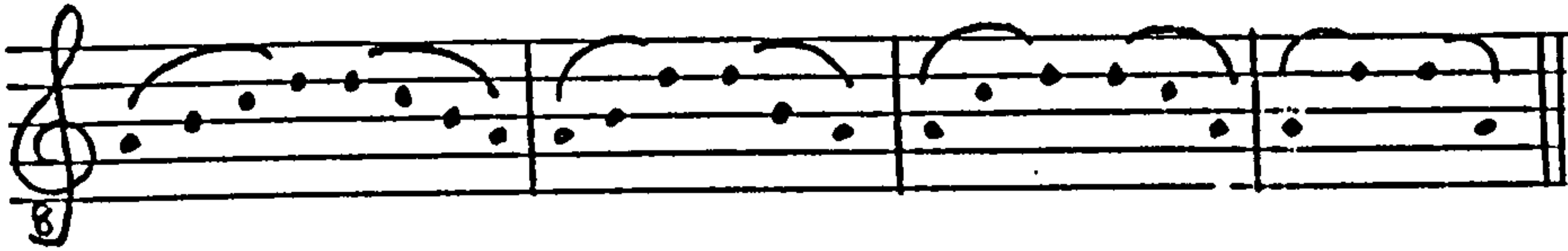


²⁴De tritono:

Est et alia quatuor aggregatio vocum in caeteris huic diatessaron utique simillima,
sed in ipsa prolatione cum tres tonos habeat contiguos, tota discors et contraria.

²⁵Hanc etsi nil valeat ad cantandum, hic tamen inserere necesse est ut noscatur ad
evitandum:

²⁶Hic tritonus in suis intervallis omni concordiae quidem adversarius, quater ut
vides in tertiam diatessaron speciem necessario mutatus, ab F in \flat tantummodo
repertus est.



²²Here is the second variety, involving the progression semitone, tone, tone: it is found only between the pitches \flat and E, or between E and A:



²³And here is the third variety,²¹ which always progresses as follows: tone, tone, semitone. It will always be found between C and F, or between G and C:



²⁴The tritone:

There is another combination of four pitches which is certainly virtually identical to this diatessaron in other respects, but since it contains three successive whole tones within its range, it is totally dissonant and conflicting.

²⁵Even though it is useless for singing, nevertheless, it needs to be mentioned here, so that we know to avoid it.

²⁶This tritone, in its order of intervals, is totally incompatible with any consonance. As you see, it needs to be changed four times to become the third species of diatessaron, and is only found between the pitches F and \flat .

²¹Pseudo-Odo uses 'differentia' to denote 'interval', and see GS 1. p. 25.

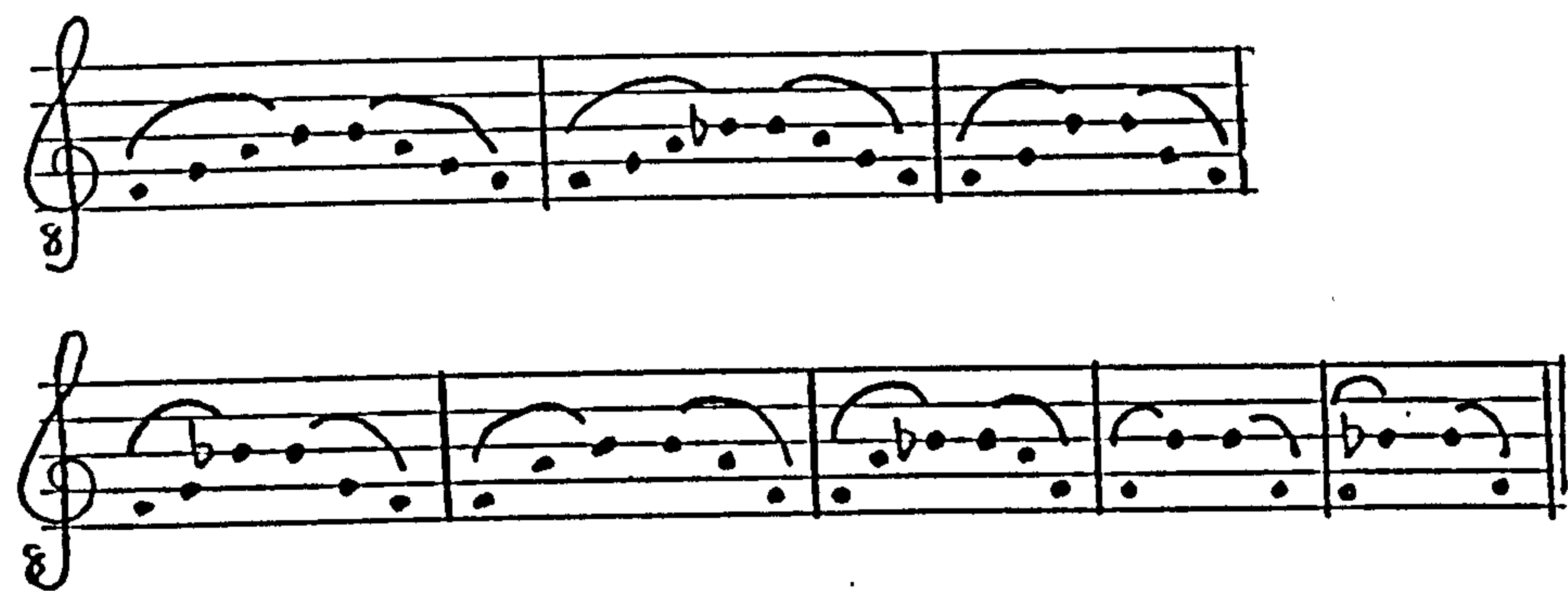


27De diapente:

Diapente secunda trium perfectarum etiam consonantiarum ea est, quae resonat in monochordo primis omnibus trium aequalium dimensae chordae passibus, dicta sic a *dia* quod est *de* vel *per*, et *pente*, *quinque*, voces etenim ipsa quinque continet, intervalla quatuor et varias quatuor species. 28Quae dum constet e tono diatessaron addito, vera semper est, habens, ut hic claret, in se tres tonos cum minori semitonio.

29Haec prima cum suis intervallis diapente differentia, procedens ex tono, semitonio, tono et tono, nec discedens a D A vel A E seu e converso:

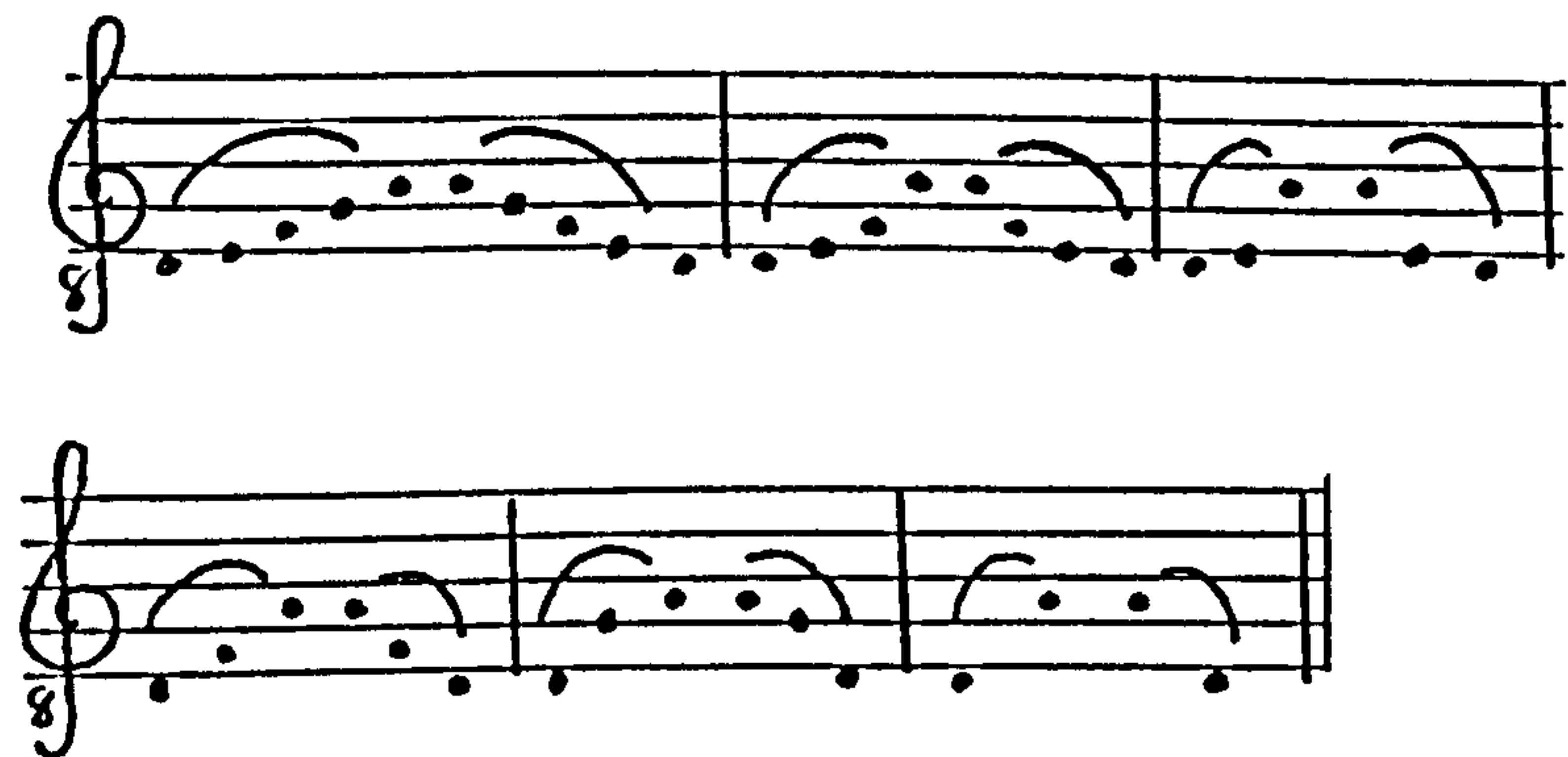




27The diapente:

The diapente is the second of the three perfect consonances; it is the one which sounds on the monochord at every first of the three equal divisions on the measured string. It derives its name from the Greek word *dia* which means *from* or *through*, and *pente* which means *five*. It contains five pitches, four intervals, and four different species. 28Since it is made up of one tone added to the diatessaron, it is always true, possessing within itself three tones and a minor semitone, a fact which is here demonstrated.

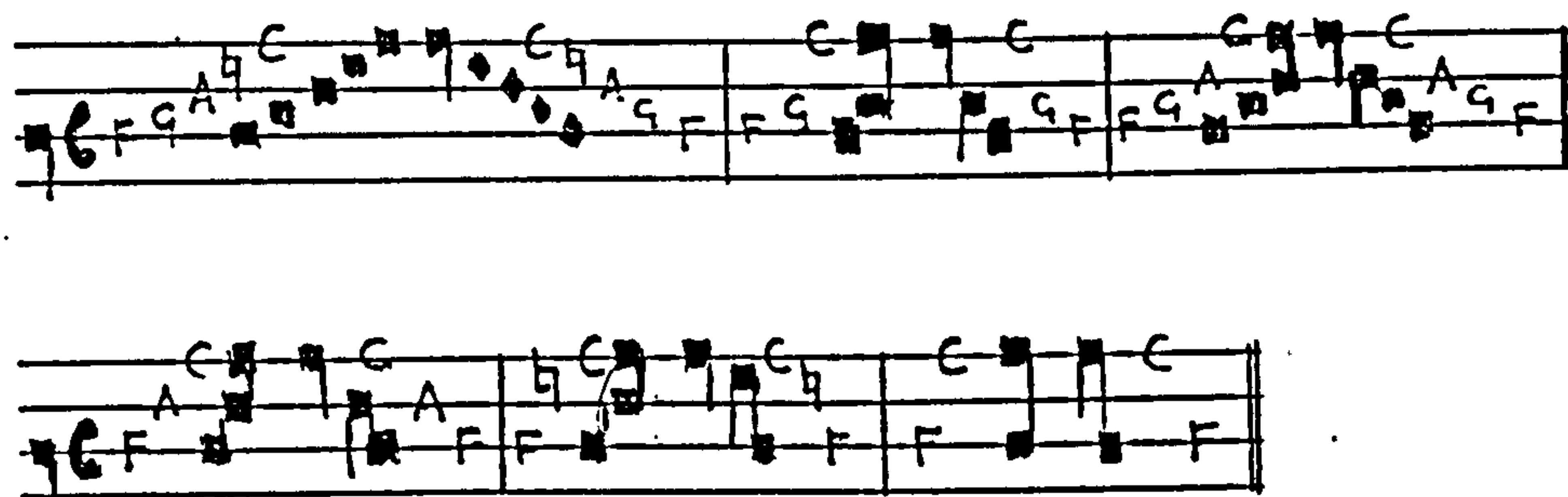
29This is the first variety of diapente with its intervals, and it progresses as follows: tone, semitone, tone, tone. It never occurs anywhere but between the pitches D and A, or A and E, or vice versa:



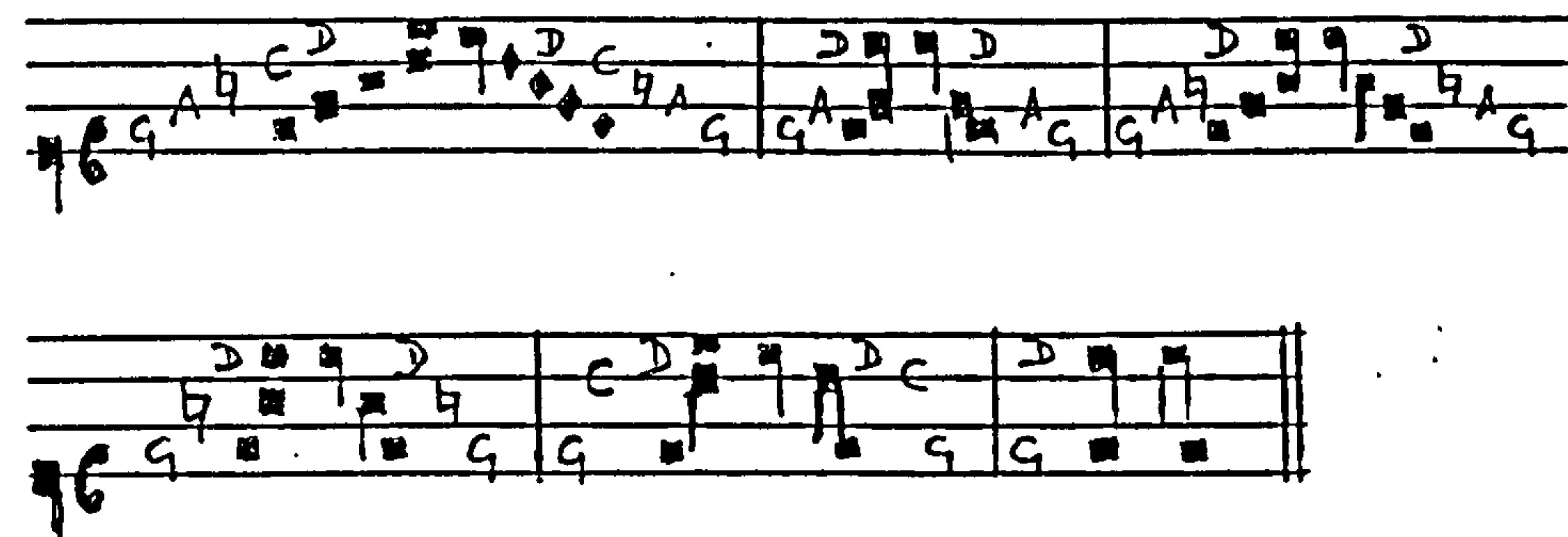
30 Haec per semitonium, tonum, tonum atque tonum secunda, quae semper habetur ab E in \flat , nec ultra:



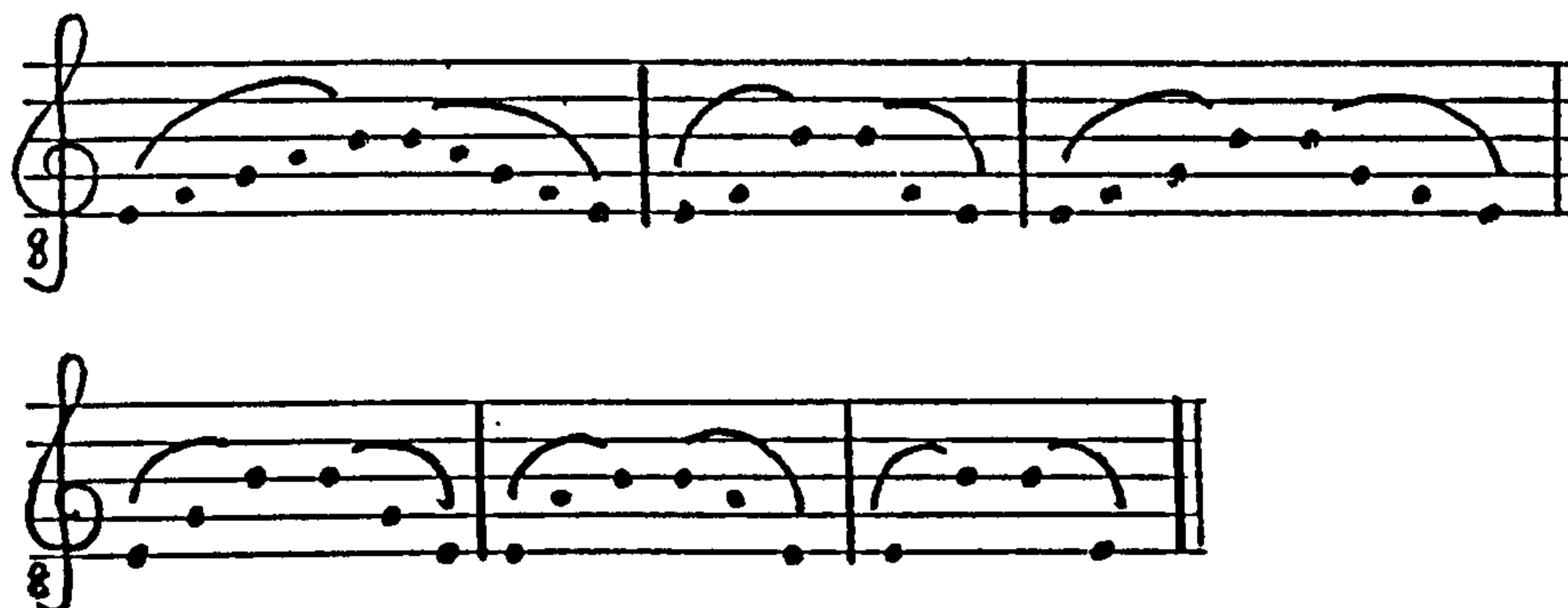
31 Haec tertia de tritono fit ac minori semitonio, nec ab F C discedit unquam ullo modo:



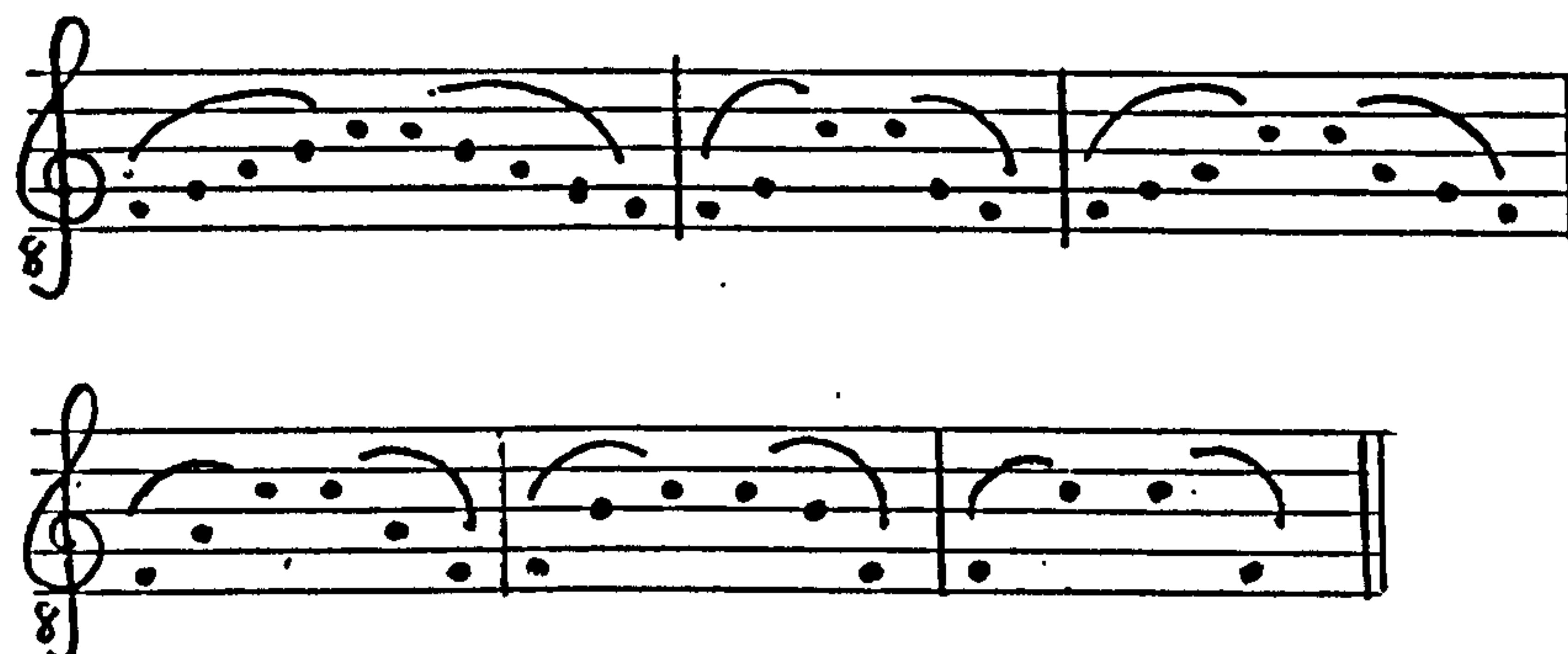
32 Haec quarta de tono, tono, semitonio et tono locum habens in C G vel G D, sic e converso:



³⁰This is the second variety, progressing through a semitone, a tone, a tone and a tone. It is always contained within the pitches E and \flat , and not beyond:



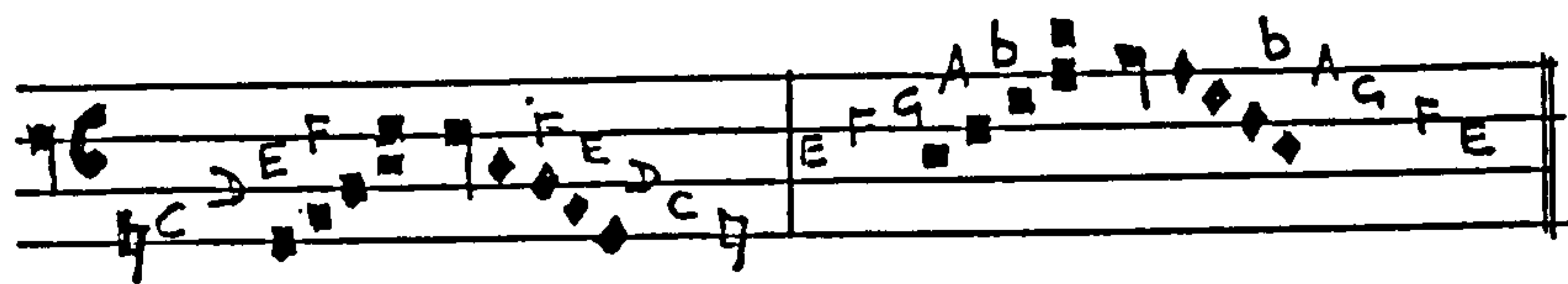
³¹This is the third variety, and is the result of a combination of the tritone and the minor semitone. It occurs absolutely nowhere else except between the pitches F and C:



³²This is the fourth variety, which has the structure tone, tone, semitone, tone. It occupies a position between C and G, or between G and D, or vice versa:



33Hoc etiam diapente sed non verum a \flat semper in F, ut hic, aut ab E in b rotundum:



34De compositis cum diapente et diapason:

Quicquid autem ultra diapente fiet, erit tonus cum diapente vel semitonium, sicque de reliquis usque dum attingas diapason. 35Nam ultra dicetur tonus cum diapason, semitonium cum diapason, ditonus cum diapason, semiditonus cum diapason, diapason diatessaron, diapason diapente, et bisdiapason cum caeteris huiusmodi compositis usque in infinitum.

36De diapason perfectissima consonantiarum:

Vides ergo de quindecim illis regulatis sonis sive phthongis creari tonos ac semitonia, tamquam syllabae de litteris; e quibus denuo ditoni fiunt ac semiditoni, velut syllabae iunctae syllabis, et ex illis diatessaron et diapente consonantiae simplices, ac si de variis componas syllabis dictiones. 37Et nunc quis negare velit diapason, quae constat ex praedictis omnibus, hic proprium habere constructionis locum?

34. diapente cum compositis A
attiguas A
35. diapente *pro* diapason³ A
36. phthongis vel regulatis sonis A
variis *om* A

³³This is also a diapente, but not a true one; it always extends from *b* to *f*, as here, or from *e* to *b*:



³⁴Those intervals which are compounds of the diapente and the diapason:

Any interval which will be bigger than the diapente will be the diapente plus tone or semitone, and so on, until you reach the diapason. ³⁵Beyond that interval one will refer to the diapason plus tone, the diapason plus semitone, the diapason plus ditone, the diapason plus semiditone, the diapason plus diatessaron, the diapason plus diapente, and the bisdiapason, with all the other similar combinations ad infinitum.

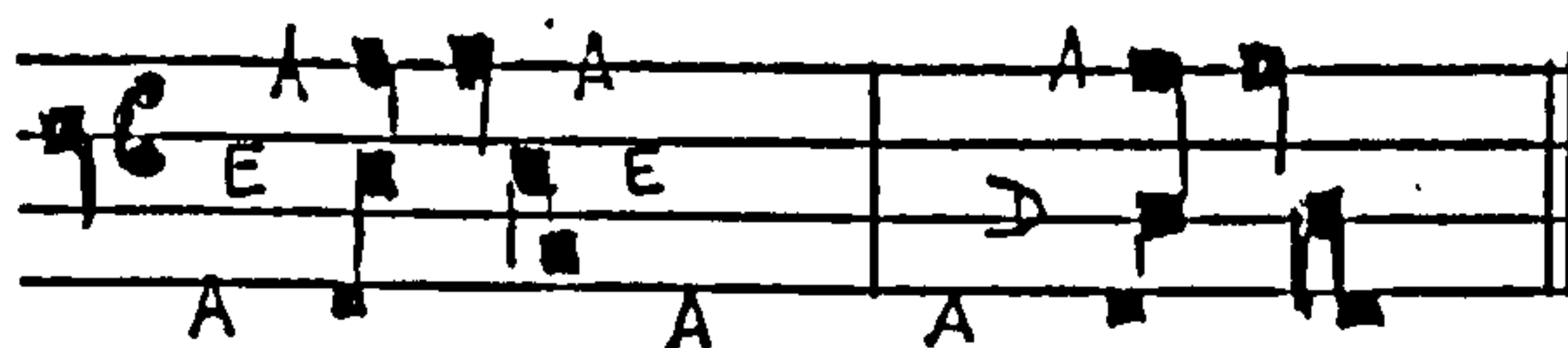
³⁶The diapason, which is the most perfect of the consonances:

You see then that tones and semitones are created out of these fifteen pitches or *phthongi*, arranged in due order, in the same way as syllables are formed from letters. Further, from these tones and semitones, ditones and semiditones are born, in the same way as syllables are joined to syllables. From these intervals come forth the diatessaron and the diapente, which are simple consonances. This happens in the same way as when one forms words from different syllables.²² ³⁷And now, who would wish to deny that the diapason, made up as it is from all the aforementioned bases, has here an appropriate opportunity for a description of its construction?

²²A further reference to the parallels drawn between musical and linguistic structure, and cf *Pars prima* 1.3.4.

³⁸Nam et a *dia*, quod est *per* aut *de*, et *pan totum* dicitur diapason, eo quod formetur ex diapente et diatessaron, aut ex eisdem per contrarium, qua consequentia quicquid melorum enuntiemus totum illa continet ac concludit. ³⁹Habet ergo phthongos octo sive voces sive sonos, ac cum duobus semitoniis minoribus, quinque tonos, in monochordo resonans omnibus primis aequalium duorum totius chordae divisae passibus. ⁴⁰Habet necnon intervalla septem, variasque per consequens species quas quidem hic per singulas non solum enumerare, sed ex quibus etiam diapente constant speciebus, et ex quibus diatessaron disponimus explicare.

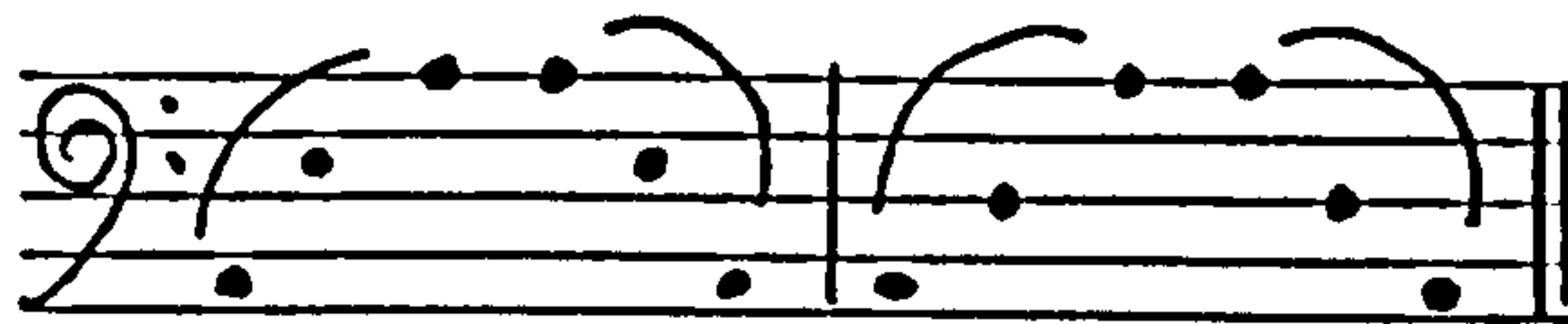
⁴¹Haec prima diapason ab A resultat semper in *a*, fitque de prima diapente cum secunda diatessaron differentia, vel ex prima diatessaron ut hic, et diapente prima:



-
38. et *om* A
de aut per A
ex *om* A
40. per *om* A
41. ab *om* A

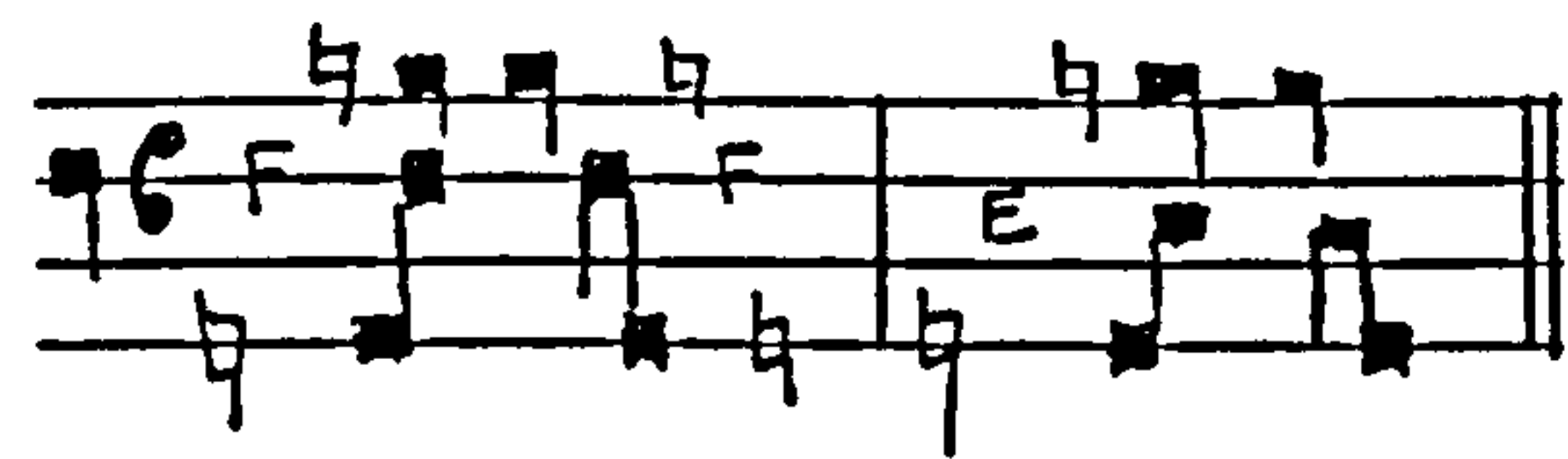
³⁸The diapason derives its name from *dia*, meaning *from* or *through* and *pan*, which means *all*—for it is formed from a combination of the diapente and the diatessaron, or from the same intervals in the reverse order; consequently, it contains and embraces totally any melody we care to sing²³. ³⁹It has therefore eight *phthongi*, or pitches or sounds, and five whole tones and two minor semitones. It sounds on the monochord at every first of the two equal divisions of the entire length of the measured string. ⁴⁰In addition, it has seven intervals, and consequently various species, which I am inclined not only to explain here, but also to explain from which species of the diapente and diatessaron these species are produced.

⁴¹This first diapason species always arises from the range of pitches from A to *a*, and its particular character arises out of the first diapente species in combination with the second species of diatessaron, or, as here, the first diatessaron with the first diapente species:

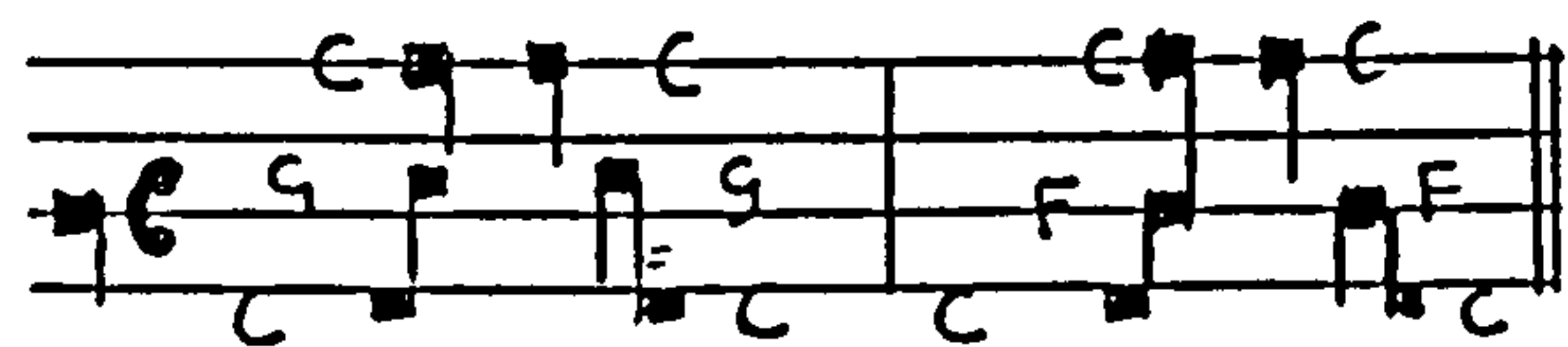


²³For a similar description of the diapason, see above *Pars prima* 1.3.29.

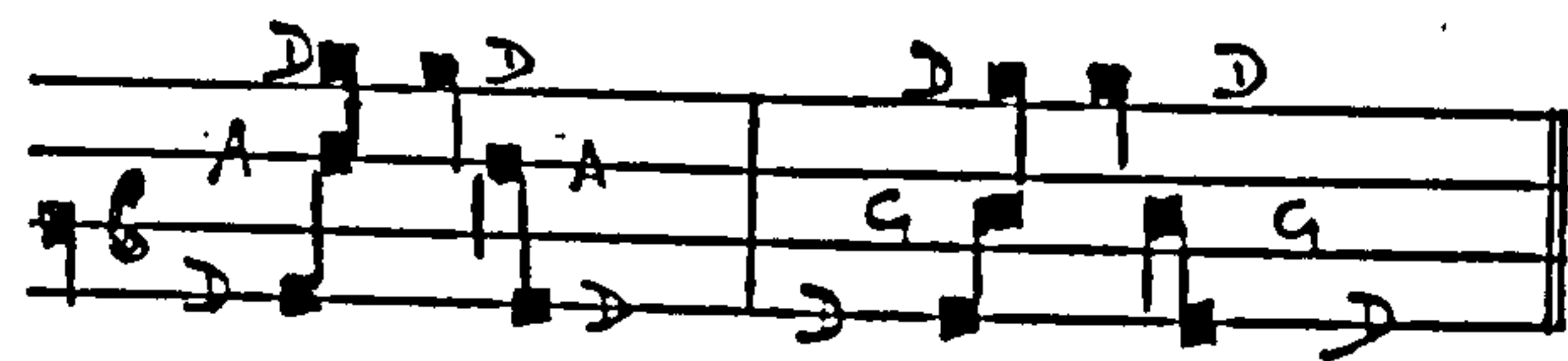
42Secunda diapason haec est a \flat semper in \flat differentia, quae constat ex non vera diapente cum tritono, vel ex secunda diatessaron et eadem diapente differentia:



43Haec diapason a C semper in c tertia differentia, constans ex quarta diapente et diatessaron specie tertia, vel ex eadem diatessaron ac diapente tertia:



44Haec diapason quartam D cum d monstrat speciem, e prima diapente cum prima diatessaron, aut ex eadem, ut hic, diatessaron et quarta diapente procedentem:

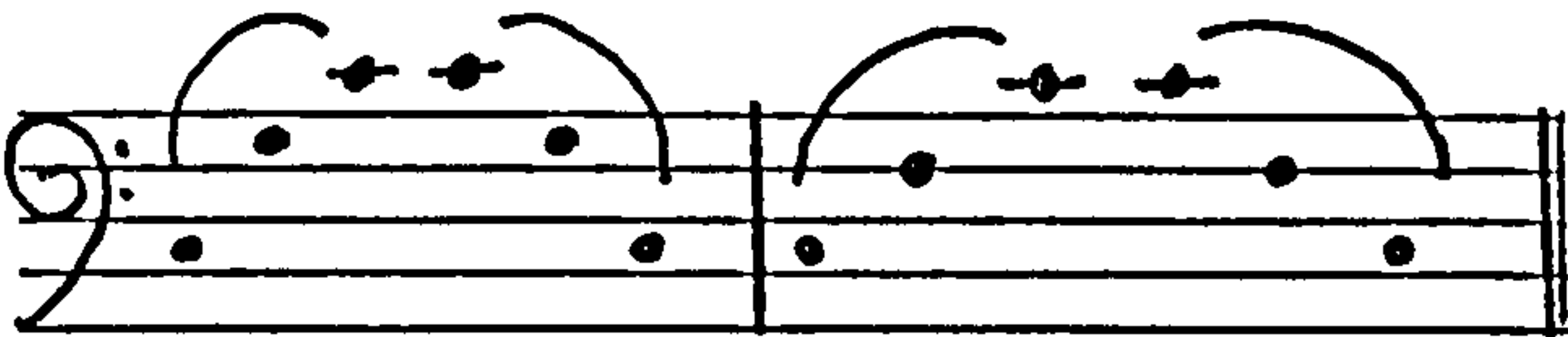


42. vera *scripsi* vero HA
hoc *pro* haec A
(ex secunda) vel ex prima *dele* A
43. Hic *pro* Haec A
ex *om* A
44. ex *adem* A

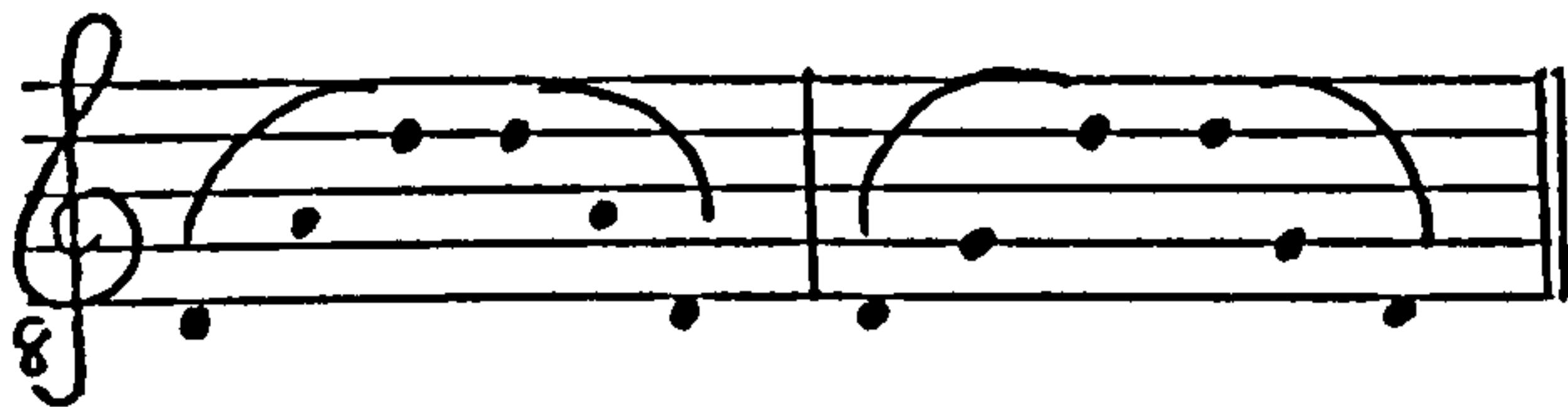
42Below we have the second species of diapason, from \flat to \flat , which is produced from the false diapente in combination with the tritone; alternatively, from the second diatessaron with the same diapente species:



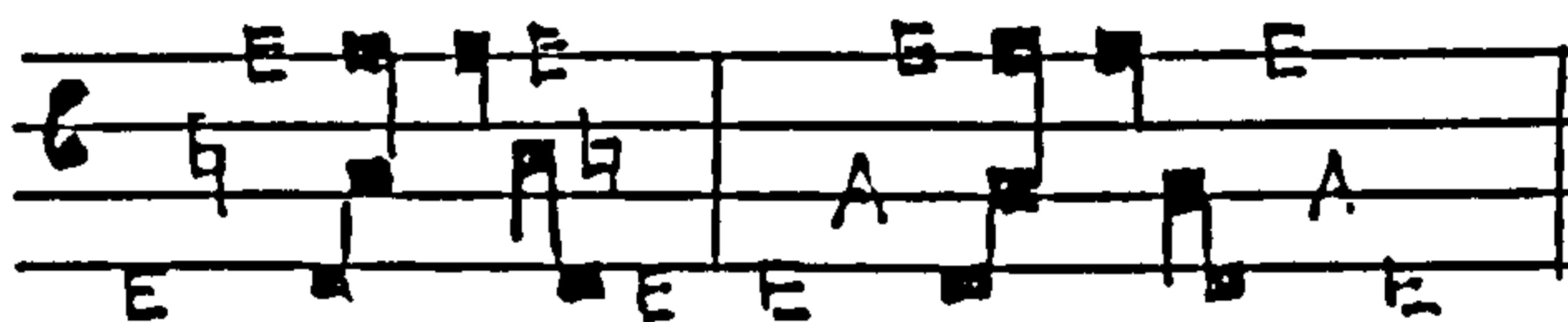
43This is the third diapason species, extending from C to c, which is produced from a combination of the fourth diapente and the third diatessaron species; alternatively, from the same diatessaron with the third diapente species:



44The example below demonstrates the fourth diapason species, which extends from D to d, and is produced from a combination of the first diapente with the first diatessaron species, or, as here, from the same diatessaron and the fourth diapente species:



⁴⁵Quinta diapason species ab E semper in *e* resonat, quam diapente secunda construit ac diatessaron eadem, aut, ut hic, secunda diatessaron ante diapente primam:



⁴⁶Sexta diapason ab F in *f* haec differentia, quam extruit diapente ac diatessaron tertia, vel certe tritonus pessima species et diapente non vera:

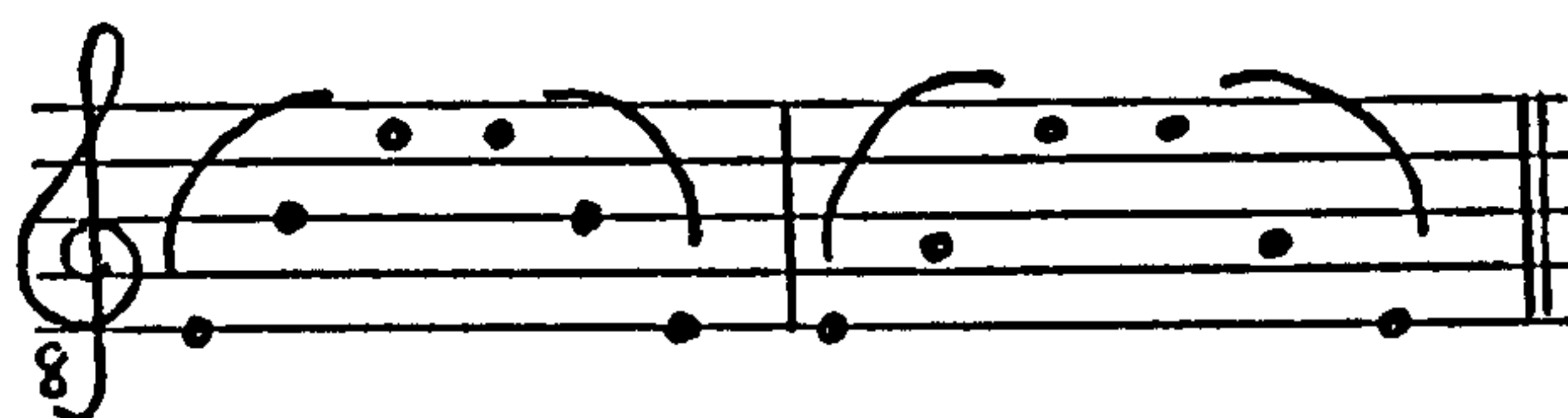


⁴⁷Haec septima diapason a G semper in *g* resultat species ultima, quam quarta diapente creat cum diatessaron prima, vel eiusdemmodi diatessaron tertia et diapente quarta:

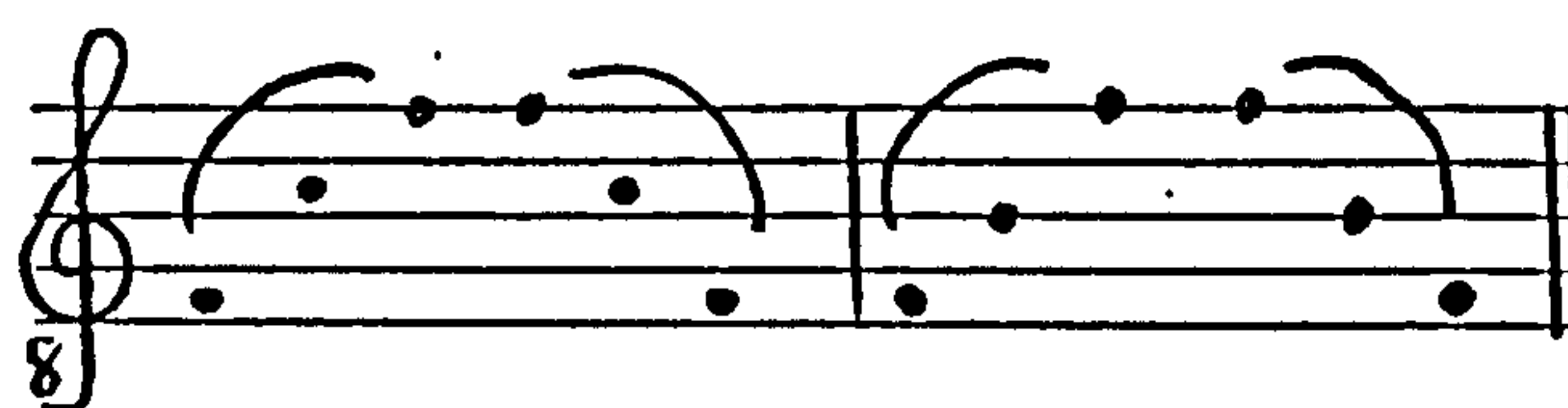


47. eiusdemmodi *scripsi* eiusdem HA

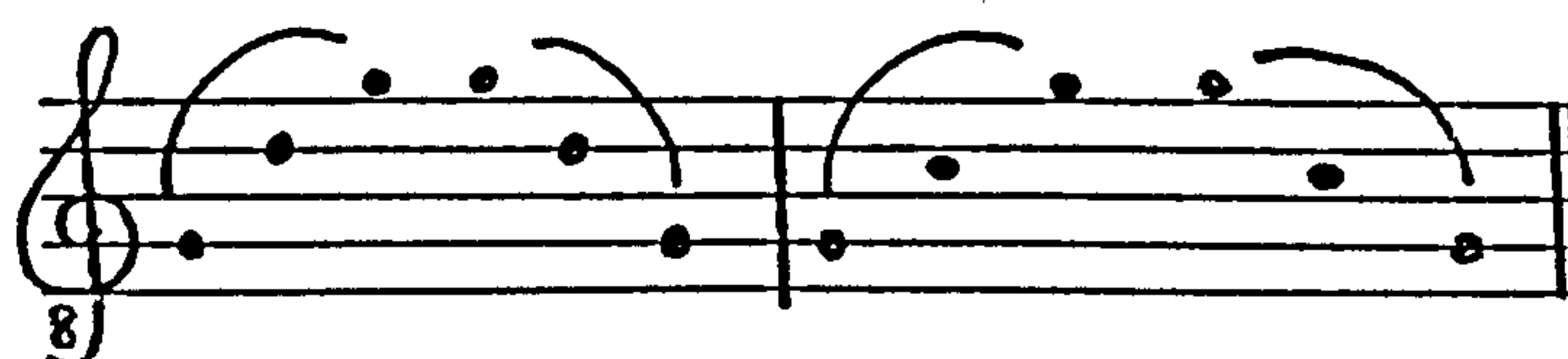
⁴⁵The fifth species of diapason always sounds between E and *e*, which the second diapente species constructs in conjunction with the same diatessaron species. Alternatively, the second diatessaron species precedes the first diapente:



⁴⁶This is the sixth species of diapason which extends from F to *f*, which the third species of diapente and diatessaron produce, or the dreadful species of tritone in conjunction with the false diapente:



⁴⁷This is the seventh and last species of diapason, which extends from G to *g*, which the fourth species of diapente creates together with the first diatessaron. Alternatively, the third diatessaron and the fourth diapente species produce the same type of diapason:



[IV]

¹De quatuor tropis tonis sive modis antiquis ecclesiasticis, in quatuor authenticos et quatuor plagales postea commutatis, et primum de proto.

²Iam vero descriptis, tam per puras litteras antiquo more quam per notas usu moderno quadras, septem diapason speciebus, in una quarum necesse est omne quod canimus cadere mundanum aut divinum, videre restat cur a principio quatuor tantum in Ecclesia fuere tropi toni sive modi. ³Quatuor etenim erant longo tempore post beatum Gregorium, quod non solum veteres attestantur ecclesiastici musici, sed et plani cantus, quorum hic aliquantos nomino, quam plurimi, protus videlicet qui Latine primus dicitur, et in D gravi semper finitur, deuterus qui est secundus in E gravi terminatus, tritus tertius in F gravi finitus, et tetrardus in G gravi finem habens, qui de Graeco versus in Latinum est quartus.

⁴Hi quatuor antiqui tropi tetrachordum unum, hoc est, quatuor sub suo fine vuculas, habere poterant, et unum desuper diapason integrum, tuncque perfecti, si vero minus haberent, imperfecti, et si plus aliquas vuculas, plusquam perfecti. ⁵Et quis nesciat, si tamen legerit Boetium de constitutionibus, aut hunc in prima parte nostrum libellum, quis, inquam, nesciat viros ecclesiasticos in illis quatuor diapason diatessaron constitutionibus hos quatuor instituisse tropos?

-
1. A 33v H42r
postea plagales A
 3. semper *om* A
(secundus) dicitur *add* A
 4. haberent *in marg* H

[1V]

¹The four early ecclesiastical tropes, tones or modes which were later changed into four authentic and four plagal modes. First—the *protus*.

²I have already described the seven species of diapason, not only by means of simple letters in the ancient tradition, but also by using square notation according to modern usage. Everything that we sing must fall into one of these species, whether it be secular or religious. It now remains for us to see why, in the beginning, there were only four tropes, tones or modes used in the Church.²⁴ ³For a long time after Saint Gregory, the figure remained at four; not only do the early church musicians bear witness to this fact, but also very many plainsong melodies, some of which I mention here. Thus the *protus*, which in Latin is *primus*, always has its final on low D, the *deuterus*, which means *secundus*, has as its final low E, the *tritus*, which means *tertius*, has its final on low F, and the *tetrardus*, translated from Greek into Latin as *quartus*, has low G as its final.

⁴These four ancient tropes were able to have one tetrachord—that is, four pitches beneath the final and a complete diapason above the final; they were then referred to as ‘perfect’. If a smaller range was involved, they were ‘imperfect’, and if more pitches were involved, they were ‘more than perfect’.²⁵

⁵If anyone has read Boethius on the topic of the systems, or the first part of my little treatise,²⁶ how can he, I ask you, how can he not be aware of the fact that the early churchmen set up these four tropes within the limits of the four diapason diatessaron systems?

²⁴For the notion of the four early modes, see Introduction p. 57 f. 27.

²⁵But cf Marchetto's classifications based upon the diapason in *Lucidarium* 11.2.20-11.2.30. Burtius follows Johannes in basing his view of perfection on the diapason/diatessaron, and see *Florum libellus* p. 98: Poterant igitur tropi.....sed plusquamperfecti, auctoritate Johannis Carthusiensis et ceterorum vocitabantur. Cf also Ramos de Pareia *Musica practica* p. 30: Non autem sunt plusquamperfecti, ut Ugolino asserit.....ac Marchettus reprobatus a fratre Johanne.

²⁶And see above *Pars prima* 3.7.

⁶Medium enim tenuere beati, nolentes occupare cantus angelicos bisdiapason, ne nimis essent intensi, neque solum diapason, ne plus aequo remissi. ⁷Has lector, quas describo noli diapason diatessaron quatuorve troporum antiquorum negligere formas, quoniam arbitrari scire posse quid sit planus cantus, quid plagalis aut quid authenticus, et haec ignorare dementia est.

⁸Omnis ergo cantus ecclesiasticus in D gravi finitus, nec A grave transgrediens nec *d* superans acutum, non est authenticus, non est plagalis, sed protus, ut ab antiquo, perfectus, cum sit in prima constitutione diapason diatessaron institutus, quam in libro tertio primae partis huius opusculi cum undecim litteris alphabeti claram fecimus. ⁹Nam antiphona 'Simile est regnum caelorum sagenae missae in mari', cum non paucis aliis huius formae planis cantibus, tam perfectis quam imperfectis et plusquam perfectis, si non sint antiqui protus, quaeso quid erunt? ¹⁰Quos praesertim si velis authenticos esse iuxta modernas regulas, contradicit prima diatessaron species, quam sub suo fine recipiunt, et si plagales, hoc non suffert eadem consonantia quam supra diapason habent. ¹¹Haec igitur antiqui protus perfecta formula, quam hic describo cum nostris litteris et nota quadra.

6. occupare *in marg* H
8. clarum *pro* claram A

⁶For the blessed fathers pursued a middle course—they did not wish their sacred melodies to occupy the range of a bisdiapason lest they be too exciting, nor, on the other hand, to have a range of a mere diapason, lest they be unjustifiably dull. ⁷Do not then, dear reader, choose to overlook these systems which I describe—the diapason diatessaron or the four early tropes. For to ignore these matters, and still consider oneself able to be familiar with plainsong, and with the plagal and authentic concepts would be totally senseless.

⁸Every liturgical melody therefore, which has its final on low D, which does not go beyond low A, and which does not go above high *d*, is neither in the authentic nor plagal mode, but falls within the *protus*, being from the earliest times regarded as 'perfect', since it is composed within the first system of diapason diatessaron—a system which I have explained in the third book of the first part of my little treatise with the aid of the eleven letters from the alphabet.²⁷ ⁹For the antiphon 'Simile est regnum caelorum sagenae missae in mari', in common with several other plainsong melodies of this type—perfect, imperfect and more than perfect—if they do not belong to the ancient *protus* category, I ask you, to what category will they belong? ¹⁰If you wish them to be in an authentic mode, according to modern rules, the first species of diatessaron disallows this which they accommodate underneath their finals; if you wish them to be plagal, the same consonance which they contain above the diapason disallows this also. ¹¹This therefore is the perfect formula of the ancient *protus* mode, which I here describe with the aid of our letters and with the square notation.

²⁷See above *Pars prima* 3.7.

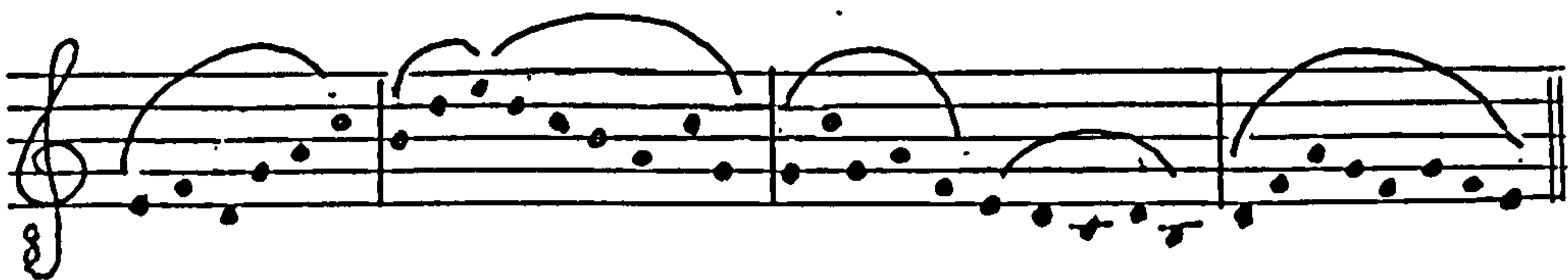
¹²Low A and high *d* demonstrate this formula of the protus mode:



¹³The ancient 'deuterus' mode:

Every plainsong melody which has its final, not on D but on low E, which does not go down beyond low *b* or ascend beyond high *e*, is neither in the authentic nor the plagal mode; rather it is the *perfectus deuterus*, as it was called at the beginning, since it lies entirely within the second diapason diatessaron system, though it may touch on low *b* rarely or never. Such examples will be the gradual 'Adiutor' with its verse 'Quoniam non in finem', also 'Beatus Servus', both as a postcommunion and as a responsory. ¹⁴This then is the formula for the second ancient type, which I here describe with the aid of our letters, and with square notation.

¹⁵The low *b* and the high *e* demonstrate this form of the 'deuterus':



¹⁶The ancient 'tritus' type:

Every plainsong melody which has its final, not on D or E, but on low F, which contains no pitch below low C, and at no point goes beyond high *f*, should in no way be called either authentic or plagal; it falls into the ancient *tritus perfectus* category, for example, the gradual 'Prope est Dominus' with its verse 'Laudem Domini loquetur os meum'. For it lies within the third diapason diatessaron system which I described in the first part of the book.²⁸

²⁸See *Pars prima* 3.7.12.

17Haec igitur antiquissimi triti formula, quam hic describo cum nostris litteris cum nota quadra.

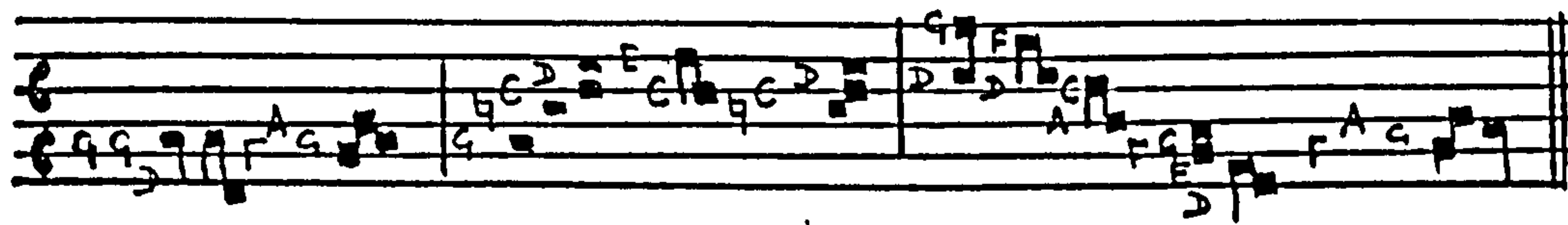
18Hanc triti monstrat formulam C gravis et *f* acutum:



19De veteri tetrardo:

Omnis denique cantus angelicus non in D nec in E, nec in F, sed in G gravi finitus, neque sub D gravi descendens neque *g* superans acutum, non est authenticus, non est plagalis, sed vetus tetrardus et perfectus, ut est graduale 'Qui sedes' cum versu suo 'Qui regis Israel' et plerique similes, in quarta diapason diatessaron constitutione compositi veraciter omnes. 20Datum est itaque tibi lector de perfectis exemplum, cantus tamen minus habentes imperfecti sunt, et qui plus, ut dictum est, plusquam perfecti. 21Haec igitur veterrimi tetrardi formula, quam hic describo cum nostris litteris et nota quadra.

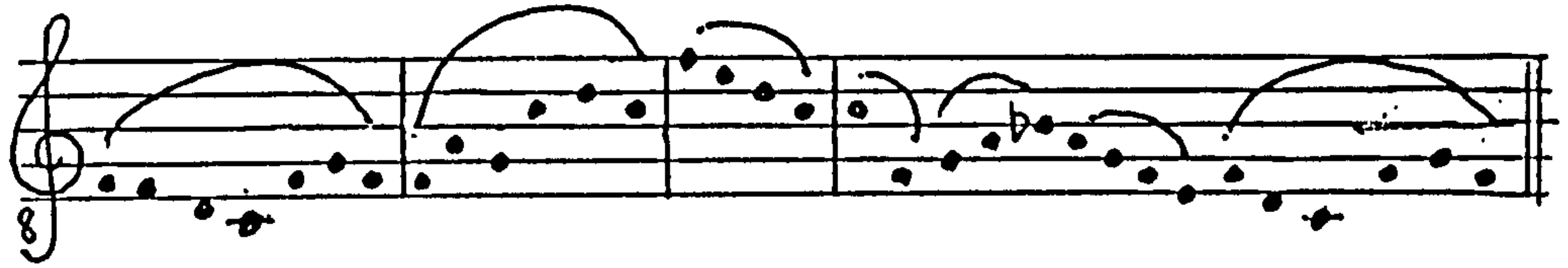
22Hanc tetrardi dant formulam D gravis et *g* acutum:



20. perfecti A
22. dant *scripsi* dat HA
G gravis A
In ex. CE *pro* EC A

¹⁷This then is the formula of the most ancient 'tritus' type, which I here describe both with the aid of our own letters, and also with square notation.

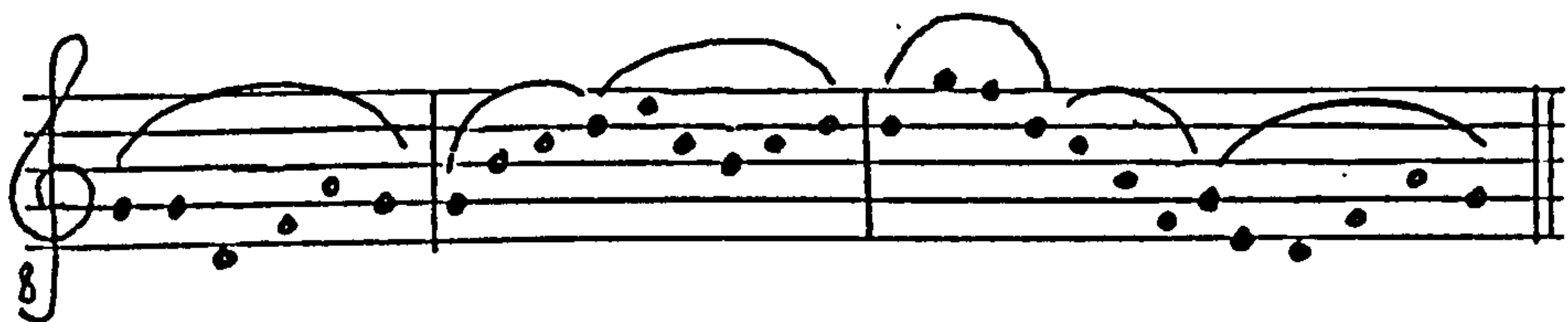
¹⁸The low C and the high *f* demonstrate this formula of the 'tritus':



¹⁹The ancient 'tetrardus':

Further, every liturgical melody which has its final on low G, and not on D, E or F, which does not descend beyond low D, or rise beyond high g, is neither authentic nor plagal, but the ancient *perfectus tetrardus*—for example, as in the gradual 'Qui sedes' with its verse 'Qui regis Israel', and indeed in several other melodies; they are all composed in fact within the fourth diapason diatessaron system. ²⁰And so, dear reader, you have been given an example of the perfect type, but melodies which have a smaller range are imperfect, and those which have a larger, as I have pointed out, are 'more than perfect'.²⁹ ²¹Here then is the formula of the most ancient tetrardus, which I describe here, using our own letters, and also the square notation.

²²Low D and high g give this formula of the 'tetrardus':



²⁹See above sentence 4.

[V]

¹De primis authenticis atque plagalibus tropis sive modis, ab antiquo proto descendentibus, quos primos et secundos moderni nuncupant abusive tonos.

²Exposita breviter, ut scivi et potui, quatuor antiquorum troporum natura, supervacuum a nemine sensato reputandum est, si qualiter primus authenticus, quem primum tonum moderni nuncupant, et primus plagalis quem secundum vocitant ab antiquo proto processerint exponam. ³Attestante siquidem Guidone monacho, didicimus novos ecclesiae musicos post auctores veteres unumquemque de quatuor illis antiquis tropis in unum principalem ac intensum et elevatum, quem quidam authenticum nominarunt, et quidam imparem, ac in unum eius affinem et remissum plagalem et subiugalem, aut secundum quosdam, parem, partitos fuisse, sicque diapason diatessaron constitutiones in solius diapason constitutionibus hac de causa commutasse. ⁴Omnis namque diapason diatessaron constitutio cum partim ex gravibus et partim ex acutis, omnino constet vocibus, si versus responsoriorum matutinalium ac introituum missarum seu inchoationes post antiphonas psalmorum et similia magis graves frequentassent, dissonabant cum acutis et si crebrius acutas exercuissent, non conveniebant cum gravibus. ⁵Hinc est quod non omnes cantus sunt mutati, quoniam non omnes sub hac conditione reperti.

-
1. A 33v H 42r
nuncupant *scripsi* noncupant H non cupant A
 2. nomine *pro* nemine A
authenticus..... primus *om* A
(proto) deciderint *dele* H (proto) processerint *in marg* H
 3. hac de causa *in marg* H

[V]

¹The first authentic and plagal tropes or modes which are descended from the ancient protus. These, the moderns incorrectly call the first and second tones.³⁰

²Now that I have briefly explained the nature of the four ancient tropes within the limits of my knowledge and my ability, no intelligent person should regard it as a waste of time if I explain how the first authentic trope, which the moderns call 'the first tone', and the first plagal type, which they call 'the second tone', developed from the ancient protus. On the evidence of brother Guido, we learnt that, after the time of the early fathers, the new church musicians divided each of the four ancient tropes into a principal one which was higher and raised in pitch, which some call 'authentic' and some call 'odd-numbered', and into a subsidiary one which was related to it but lower in pitch; this was the plagal form which some called 'even-numbered'.³¹ It was in this way, and for this reason, that they changed the diapason diatessaron systems into systems which were solely of the diapason type. ⁴For every diapason diatessaron system is made up partly from low, and partly from high pitches. Therefore, if the verses of the matins responsories, the introits to the masses, the beginnings of the psalms after the antiphons, and similar forms were centred more on the low pitches, they were musically incompatible with the high pitches. On the other hand, if they more frequently made use of the high pitches, they did not accord with the low. ⁵It is for this reason that not all melodies were changed, since not all were found to be in this state.

³⁰Guido says that the modes or tropes are incorrectly called tones: Hi sunt quattuor modi vel tropi, quos abusive tonos nominant (*Micrologus* 10, 2 (p. 133)). It is also, he says, wrong to refer to the authentic and plagal protus as the first and second tones: Abusio enim tradidit Latinis dicere pro autentico proto et plagia proti primus et secundus. Marchetto provides an example of such an 'erroneous' use: Primus tonus formatur ex prima specie diapente (11.4.2).

³¹Jacques de Liège (*Speculum* 6 p. 89) and Marchetto (*Lucidarium* 11.2.7) use 'par' for the even-numbered modes, and 'impar' for the odd-numbered.

⁶Divisus est ergo primum antiquus protus a suo fine per diapente sursum, sicut et deuterus, tritus et tetrardus, et per diatessaron desuper, et factus est primus authenticus a D gravi in *d* acutum, aut secundum modernos, primus tonus in quarta specie vel constitutione diapason.

⁷Divisus est etiam in eandem primam diapente speciem desuper, et in eandem primam diatessaron sed inferius, et factus est primus plagalis aut subiugalis ab A gravi in *a* acutum, qui est secundus tonus in prima specie seu constitutione diapason.

⁸Omnis ergo cantus divinus in D gravi finitus, nil habens sub suo fine nec *d* superans acutum, non est utique protus antiquus, sed primus e proto procedens authenticus primusve tonus perfectus, ut est introitus missae 'Statuit ei Dominus testamentum pacis'. ⁹Haec igitur primi toni de proto veteri tracta formula, quam hic describo cum nostris litteris et nota quadra.

¹⁰Hic est primus authenticus intra quartam diapason, sed per primam diapente primamque diatessaron.



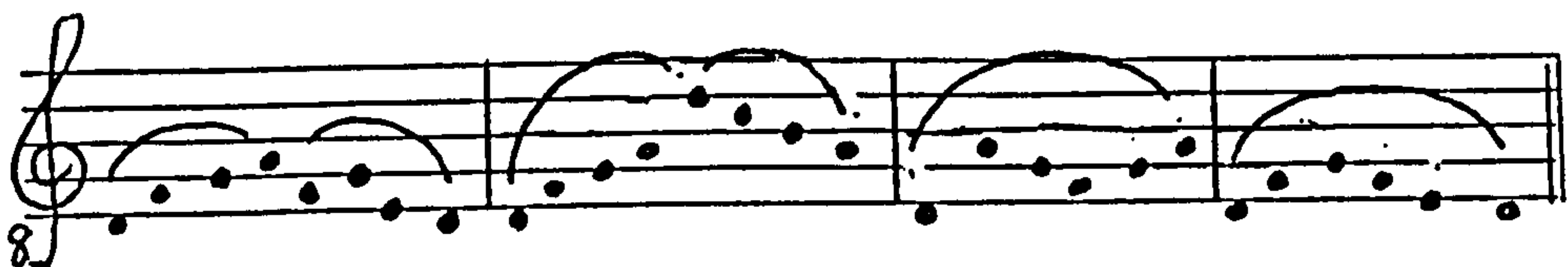
-
- 6. primus *pro* primum A
 vel constitutione *in marg* H
 - 7. primam¹ *in marg* H
 speciem *supra lin* H
 primam² *supra lin* H
 - 8. perfectus *in marg* H

⁶Consequently, the ancient protus was divided, first starting at its final, into a diapente above, in common with the deuterus, tritus and tetrardus, and a diatessaron above that again, thus producing the first authentic mode from low D to high *d*, or according to the moderns, the first tone in the fourth species or system of diapason.

⁷A further division of the protus took place—which involved the same first species of diapente above, and the same first diatessaron species, but placed below. This procedure produced the first subsidiary or plagal form, extending from low A to high a, which is the second tone within the first species of diapason, or diapason system.

⁸Every liturgical melody which has low D as its final, has nothing below its final, and does not go beyond high *d*, does not accordingly come under the heading of the protus of old, but is the first authentic, or the first perfect tone, which arises out of the protus; for example, the introit 'Statuit ei Dominus testamentum pacis'. ⁹Here then is the formula of the first tone, derived from the ancient protus, and I describe it here with the aid of our letters, and also in square notation.

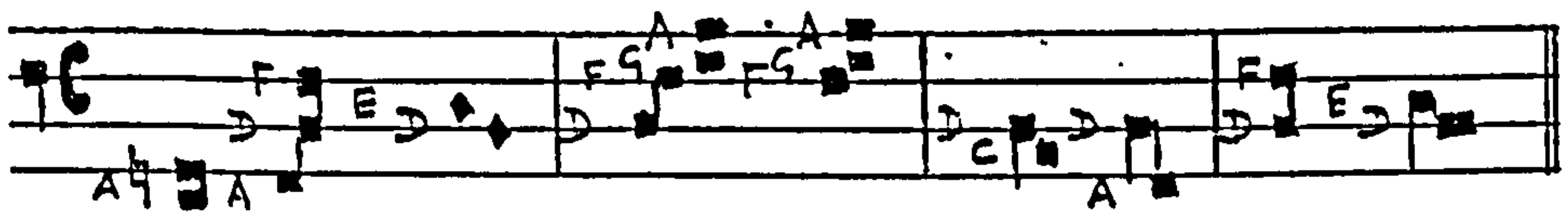
¹⁰Here is the first authentic tone, set within the limits of the fourth diapason species, but based upon the first diapente and the first diatessaron species.



¹¹De primo plagali sive secundo tono:

Omnis vero cantus ecclesiasticus in D quoque gravi finitus, sed sub fine suo diatessaron habens, nec *a* superans acutum, non est protus etiam sed e proto procedens authentici primi primus affinis, plagalis et subiugalis secundusve tonus perfectus, ut est introitus 'Venite adoremus', qui dominica prima post Epiphaniam cantari solet. ¹²Haec igitur secundi toni de proto veteri tracta formula, quam hic describo cum nostris litteris et nota quadra.

¹³Hic est primus subiugalis intra primam diapason, sed eidem diapente subdita diatessaron.



¹⁴De secundis authenticis atque plagalibus tropis sive modis ab antiquo deuterio descendentibus, quos tertios et quartos moderni nuncupant abusive tonos.

¹⁵Divisus est etiam deuterus antiquus a suo fine per secundam diapente speciem ac per secundam diatessaron desuper, et factus est secundus authenticus ab E gravi in *e* acutum, aut secundum modernos, tertius tonus in quinta specie vel constitutione diapason. ¹⁶Divisus est iterum in eandem secundam diapente speciem desuper, ac in eandem secundam diatessaron sed inferius, et factus est secundus plagalis aut subiugalis a *b* gravi in acutum, qui et quartus tonus in secunda specie vel constitutione diapason.

-
11. *sed*¹ *in marg* H
 *si pro sed*² A
 (introitus) missae *add* A
14. descendentibus A
 non cupant A
15. specie vel constitutione *in marg* H

¹¹The first plagal form, or second tone:

Every liturgical melody which likewise has low D as its final, but has a range of a diatessaron below it, and does not go beyond high A, is also not the protus type, but the plagal or subsidiary mode, derived from the protus and related to the first authentic form, and otherwise known as the second perfect tone. An example is the introit 'Venite adoremus', which is usually sung on the first Sunday after Epiphany. ¹²Here then is the formula of the second tone, derived from the protus of old, and I describe it here with the aid of our letters and with square notation.

¹³Here is the first subsidiary mode, set within the limits of the first species of diapason, but with the first diatessaron lower than the first species of diapente.



¹⁴The second authentic and plagal tropes or modes, descended from the deuterus of old, which the moderns incorrectly call the third and fourth tones.

¹⁵Starting at its final, the ancient deuterus was likewise divided into an arrangement involving the second species of diapente, and above it the second diatessaron species, thus producing the second authentic mode from low to high *e*, called by the moderns the third tone set within the fifth species of diapason, or diapason system. ¹⁶A second arrangement involved the same second species of diapente placed above, together with the second species of diatessaron, as previously, but placed below. This became the second plagal or subsidiary mode from low *b* to high *b*, which is the fourth tone within the second species of diapason or diapason system.

¹⁷Every plainsong melody then which has low E as its final, which contains no pitches beneath its final, and does not go beyond high *e*, is not the ancient deuterus, but the second authentic mode, derived from it; it is also called the third perfect tone; for example, the antiphon 'Nemo te condemnavit mulier'.

¹⁸Here then drawn up is the formula of the third tone, derived from the ancient deuterus, and I describe it here with the aid of our letters, and in square notation.

¹⁹Here is the second authentic mode, set within the limits of the fifth species of diapason, using the second diapente and the second diatessaron species.

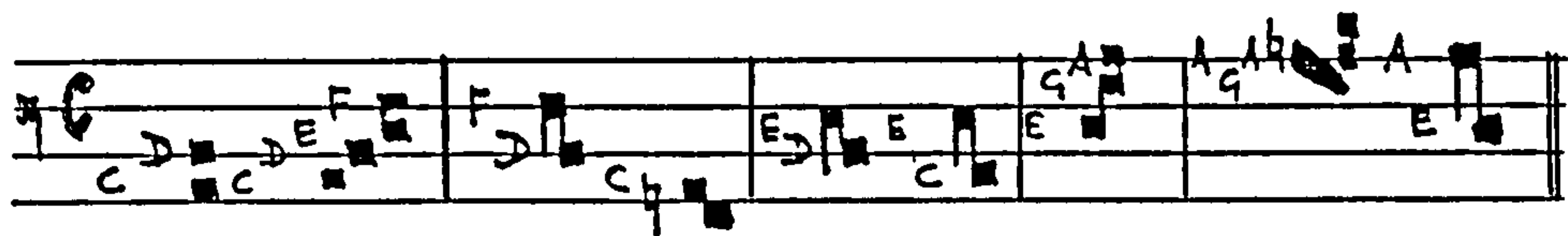


²⁰The second plagal mode or fourth tone:

Every plainsong melody which likewise has low E as its final, but which has a range of a diatessaron below its final, and which does not go above high *b*, is also not the deuterus but the second plagal mode derived from it; it is closely related to the second authentic mode, and is also called the fourth perfect tone; for example, the responsory 'Usque quo exaltabitur', which is sung at matins on Passion Sunday. ²¹This melody is the only one I have seen which ends on low E and descends to low *b*; it is not imperfect, as it appears to be, since, like many other melodies, it achieves perfection in its own verse, 'Qui tribulant'. ²²It matters not at all that it reaches down to low A, because, since the diapason alone contains little variety, it is particularly appropriate for these species to help each other out.

23Haec igitur quarti toni de deuterio veteri tracta formula, quam hic describo cum nostris litteris et nota quadra.

24Hic secundus subiugalis in secunda diapason, sed eidem diapente subdita diatessaron.



25De tertiis authenticis atque plagalibus tropis sive modis ab antiquo trito derivatis, quos quintos et sextos moderni nuncupant abusive tonos.

26Divisus est et vetus tritus a suo fine per tertiam diapente speciem et per tertiam diatessaron desuper, et factus est tertius authenticus ab F gravi in f acutum, aut secundum modernos, quintus tonus in sexta specie vel constitutione diapason.

27Divisus est etiam in eandem tertiam diapente speciem desuper, et in eandem diatessaron sed inferius, et factus est tertius plagalis aut subiugalis a C gravi in c acutum, qui est sextus tonus in tertia specie vel constitutione diapason.

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24. *in ex: b pro \flat A*
25. *non cupat A*
26. *(aut) ab E gravi in E acutum aut (secundum) add A*
 tertius pro quintus A
 quinta pro sexta A
27. *iterum pro etiam A*
 (eandem) secundam (diapente) dele A
 ac pro et A
 (eandem) secundam (diatessaron) dele A
 eadem pro eandem A
 F pro C A

²³Here then drawn up is the formula of the fourth tone, derived from the old deuterus, and I describe it here with the aid of our letters, and in square notation.

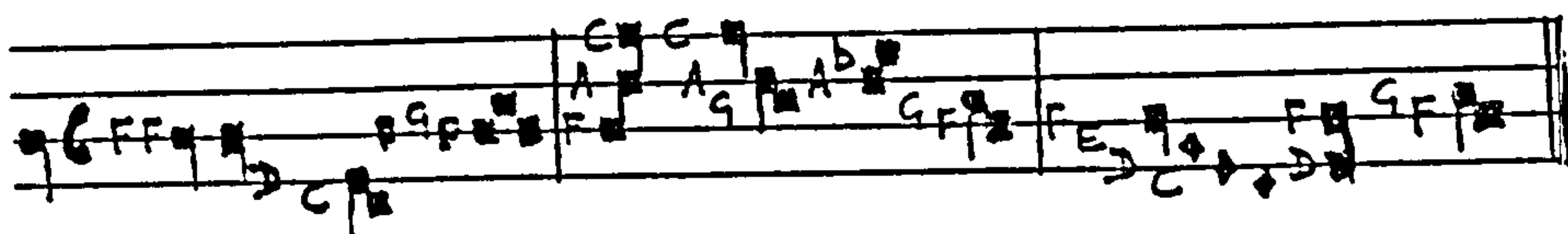
²⁴Here is the second plagal mode set within the limits of the second species of diapason, but with the diatessaron placed underneath the same species of diapente.



²⁵The third authentic and plagal tropes or modes, derived from the old tritus, which the moderns wrongly call the fifth and sixth tones.

²⁶The ancient tritus, starting at its final, was also divided into an arrangement involving the third species of diapente with the third species of diatessaron above, thus producing the third authentic mode from low F to high *f*, or, according to modern terminology, the fifth tone within the sixth species of diapason, or diapason system. ²⁷It was divided again into the same third species of diapente above, and the same third species of diatessaron, but placed underneath .

³³Hic tertius est plagalis in tertia diapason, sed eidem diapente subdita diatessaron.



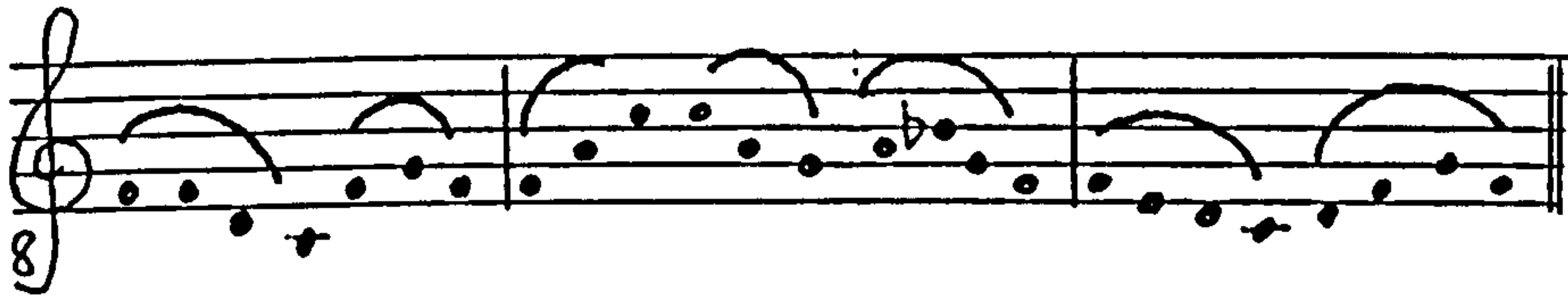
³⁴De quartis authenticis atque plagalibus tropis sive modis ab antiquo tetrardo derivatis, quos septimos et octavos moderni nuncupant abusive tonos.

³⁵Divisus est quoque senex tetrardus a suo fine per quartam diapente speciem et per primam diatessaron desuper, et factus est quartus authenticus a G gravi in g acutum, aut secundum modernos, septimus tonus in septima specie vel constitutione diapason. ³⁶Divisus est iterum in eandem diapente speciem desuper, et in eandem primam diatessaron, sed inferius, et factus est quartus plagalis aut subiugalis a D gravi in d acutum, qui est octavus tonus in quarta specie vel constitutione diapason.

³⁷Omnis ergo cantus angelicus in G gravi finitus, nil habens sub suo fine nec g superans acutum, non est senex tetrardus, sed quartus a sene tetrardo procedens authenticus septimusve tonus perfectus, ut est antiphona 'Videntes stellam magi' cum caeteris huiusmodi planis cantibus. ³⁸Haec igitur septimi toni de sene tetrardo tracta formula, quam hic describo cum nostris litteris et nota quadra.

33. intra *pro* in tertia
 36. in *pro* a A
 37. planis *om* A

³³Here is the third plagal mode set within the third species of diapason, but with the third diatessaron set below the third species of diapente.



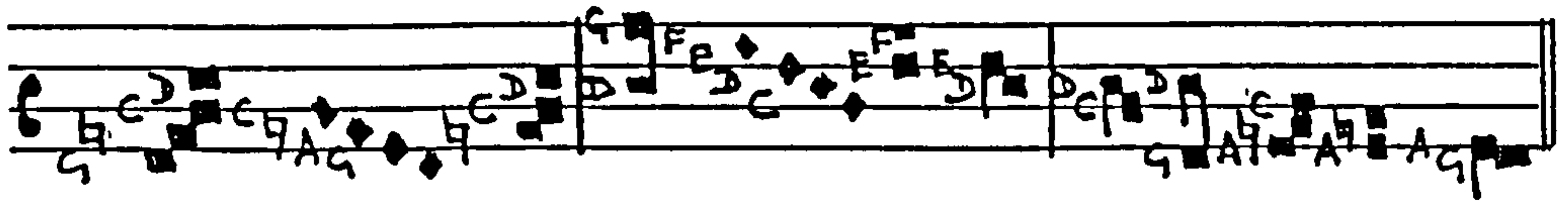
³⁴The fourth authentic and plagal tropes or modes, derived from the ancient tetrardus, which the moderns incorrectly call the seventh and eighth tones.

³⁵Starting at its final, the ancient tetrardus was also divided into the fourth species of diapente, and above that, the first species of diatessaron; thus was produced the fourth authentic mode from low G to high g, or, according to modern terminology, the seventh tone set within the seventh species of diapason, or diapason system. ³⁶It was further divided as follows: the same fourth species of diapente above, and the same first diatessaron species, but placed underneath the final. Thus was produced the fourth plagal or subsidiary mode—from low D to high d, which is also the eighth tone, set within the fourth species of diapason, or diapason system.

³⁷Every religious melody therefore which has low G as its final, which has no pitches below its final, and which does not go beyond high g, is not the tetrardus of old, but the fourth authentic mode derived from the ancient tetrardus; it is also called the seventh perfect tone, as for example in the antiphon 'Videntes stellam magi', and in other plainsong melodies of this type.

³⁸Here then drawn up is the formula of the seventh tone—derived from the ancient tetrardus—and I describe it here with the aid of our letters, and in square notation.

³⁹Hic est quartus authenticus in septima diapason, sed ex quarta diapente primaque diatessaron.



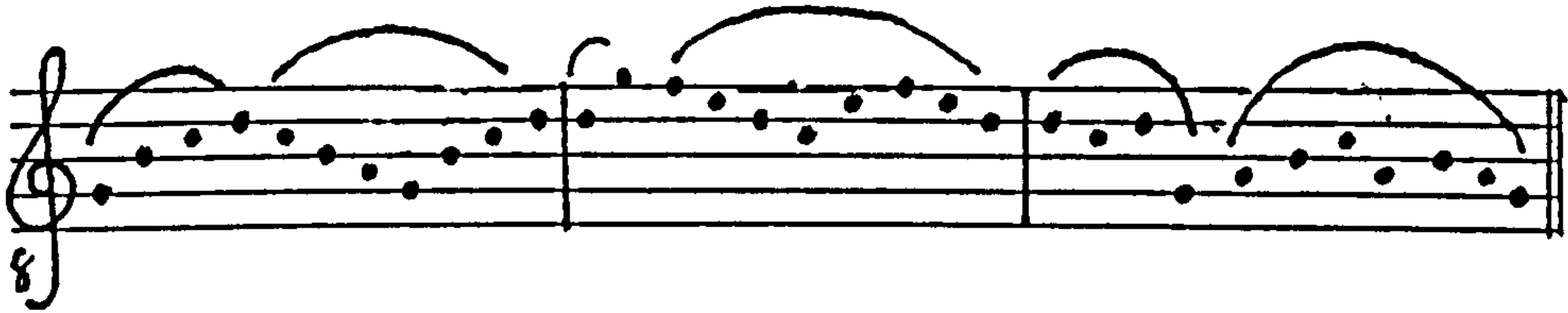
⁴⁰De quarto plagali seu octavo tono:

Omnis vero cantus planus in G quoque gravi finitus, sed sub fine suo diatessaron habens, nec *d* superans acutum, non est etiam senex tetrardus, sed a sene tetrardo procedens authentici quarti [affinis] quartus plagalis et octavus tonus perfectus, ut est responsorium 'Beatam me dicent', et sic de talibus. ⁴¹Verum unde nobis octavus iste tonus, cum diapason, quae totam in se concludit musicam, nisi septem varias species habeat? ⁴²Hic recolendum est singulas ante paululum diapason species dupliciter esse divisas, et aliud per diapente nobis ac diatessaron desuper resonare, aliud vero per diatessaron inferius ac desuper diapente. ⁴³Quamobrem octavus tonus esse potuit, et est non alicui similis, quoniam eandem diapason speciem, quam primus tonus per primam diapente speciem et primam diatessaron desuper dividens inhabitat, ipse per primam quoque diatessaron sed inferius, ac per quartam diapente desuper metitur ac possidet. ⁴⁴Haec igitur octavi toni de sene tetrardo tracta formula, quam hic describo cum nostris litteris et nota quadra.

39. *in ex. C² om A b pro b²A*

43. *et non alicui est similis A*

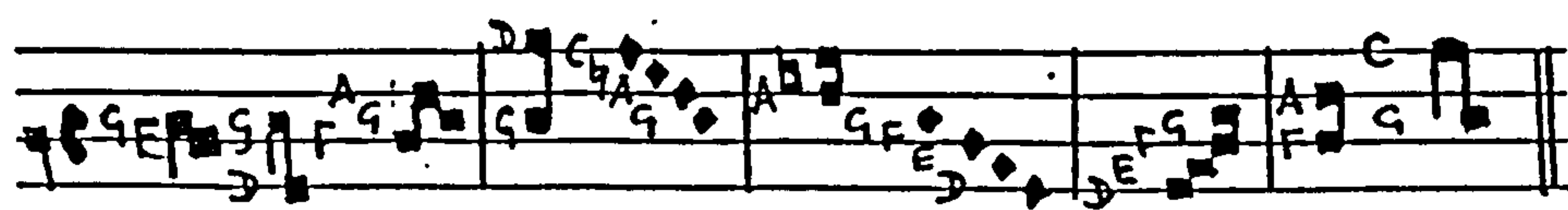
³⁹Here is the fourth authentic mode set within the seventh species of diapason, but produced by the fourth species of diapente and the first diatessaron.



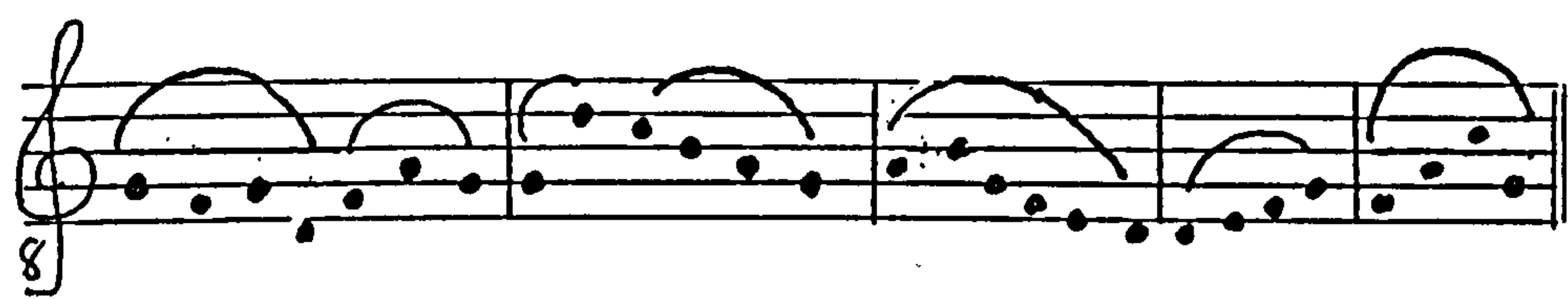
⁴⁰The fourth plagal mode, or eighth tone:

Every plainsong melody which also has low G as its final, but has a range of a diatessaron beneath its final, and does not go beyond high *d*, is again not the tetrardus of old, but the fourth plagal mode, derived from the old tetrardus, and a close relation of the fourth authentic mode; it is also the eighth perfect tone. This is, for example, demonstrated in the responsory 'Beatam me dicent', and also in other melodies of this type. ⁴¹But what is the source for us of this eighth tone, when the diapason, which contains within itself all music, possesses only seven different species? ⁴²At this point, we should call to mind that a little previously the diapason species had been divided into two types, and make one sort of sound when both diapente and diatessaron are above the final, and another with the diatessaron below, and the diapente above. ⁴³For this reason, the eighth tone was able to exist; it is not identical to any one of the others, since, although it occupies the same diapason as the first tone, which divides it between the first species of diapente with the first species of diatessaron placed above it, the eighth tone measures and fills the diapason with the first species of diatessaron also, but placed beneath the final, and the fourth species of diapente placed above. ⁴⁴Here then drawn up is the formula of the eighth tone, derived from the tetrardus of old, and I describe it here with the aid of our letters, and in square notation.

45Hic est quartus subiugalis intra quartam diapason supra finem diapente sub
habens diatessaron.



⁴⁵Here is the fourth plagal mode, set within the limits of the fourth species of diapason, and which has the diapente above its final, the diatessaron beneath it.



[VI]

¹De parvulis planis cantibus, ac de certis aliis in plano cantu frequenter occurrentibus dubiis.

²Hucusque dante Deo tractatum est de tropis Ecclesiae tonis sive modis antiquis et modernis, dataque sunt exempla de perfectis cantibus, hoc est, suas in quibus creati sunt constitutiones adimplentibus, ut illis cognitis imperfecti qui debito minus habent vocentur, ut supra dictum est; qui vero metas in aliquo transcendunt debitas plusquam perfecti. ³Quid ergo de parvulis cantibus dicendum, qui dum paucis constant verbis, paucas etiam necesse est habeant voces, quique non solum diapason transcendere nequeunt, verum etiam diapente saepius non attingunt? ⁴Est absque dubio semper in his ad antiquitatem recurrendum. ⁵Quisnam dubitare debeat infinitas antiphonas parvulas, ut est 'Quam pulchra es', 'De Sion exhibit lex', 'Dominus defensor vitae meae', 'Domine probasti me', 'Fidelia', 'In conspectu angelorum', 'Benedictus Dominus in aeternum', 'Sit nomen Domini', 'Benediximus vobis', quis, inquam, has et multas alias similes ambigat illo in tempore quo et alii cantus ecclesiastici facti sunt inventas? ⁶Quo videlicet tempore, Mater Ecclesia quatuor illos dumtaxat antiquos tropos habebat, quatuorque per consequens versus responsoriorum et introituum, quos nunc habent adhuc huiusmodi cantus authentici, sed et quatuor tantummodo psalmorum intonationes, quas quoque nunc antiphonae tenent authenticales.

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1. A 35v H 44v
caeteris *pro* certis A
aliis *supra lin* H
 3. non *supra lin* H
 5. in *supra lin* A

[VI]

¹Plainsong melodies of limited range. Certain other questions which frequently occur in a plainsong melody.

²Up to now, with God's grace, I have dealt with the ecclesiastical tropes, tones or modes, both ancient and modern, and I have provided examples of perfect melodies—that is, those which occupy the full range of the systems within which they were composed, so that, when these are recognised, those melodies may be called 'imperfect' which occupy fewer pitches than they are due—a fact which I have previously pointed out; again, those which to some extent go beyond the accepted range are regarded as pluperfect. ³What then should one say about those melodies of limited range, which, since they consist only of a few words, must be made up of only a few pitches? Not only are they unable to go beyond the range of a diapason, but more often than not, they do not extend even to the range of a diapente ⁴In these matters, there is no doubt that one should always refer to Antiquity. ⁵For everyone should know that there is an endless list of antiphons which make use of a limited range, for example: 'Quam pulchra es', 'De Sion exhibit lex', 'Dominus defensor vitae meae', 'Domine probasti me', 'Fidelia', 'In conspectu angelorum', 'Benedictus Dominus in aeternum', 'Sit nomen Domini', and 'Benediximus vobis'. Is there anyone, I say, who doubts that these melodies, together with many others of the same type, were composed at the same time as other liturgical melodies were produced? ⁶Clearly, at that time, Mother Church had available to her only the four ancient tropes, and consequently four verses of the responsories and the introits, which authentic melodies of this type even now occupy. But the Church also possessed merely four intonations of the psalms, which are now also occupied by the authentic antiphons.

⁷Ergo nulla prorsus erat apud priscos Dei cultores de his ambiguitas, quoniam omnis cantus divinus in D gravi finiens protus erat, et secundum protum se gerebat magnus, mediocris aut parvus, perfectus, imperfectus aut plusquam perfectus, et si in E gravi deuterus, et si in F gravi tritus, et si in G gravi tetrardus.

⁸Dedere tamen auctores postea plagalium et authenticorum parvulis istis antiphonis, quae saltem diapente supra suum finem habent, inchoationes psalmorum ac terminationes quae pertinent ad authenticos, ut est 'Quam pulchra es', 'Dominus defensor', ac multae similes; eis vero, quae solam diatessaron aut minus occupant, quae sunt plagalium assignaverunt intonationes, sicuti 'De Sion exhibit lex', 'Fidelia', necnon ac huiusmodi plures.

⁹Nullus ergo cantus planus qualiscumque fuerit, grandis sive parvus, magis frequentans diapente supra suum finem quam diatessaron, et nihil ultra, nihilque sub eodem fine vel parum habens, esse non potest plagalis, sicut nec frequentans plus diatessaron eodem modo quam diapente, nunquam erit authenticus.

¹⁰Quemadmodum enim impares et autentici tropi plagalibus atque paribus ob sui motum ad alta tendentem digniores, ita diapente consonantia quanto maior ac virilior tanto parvula diatessaron debilius praestantior atque nobilior.

7. manus *pro* magnus A
 8. es *om* A
 quae vero A
 9. et nihil ultra *in marg* H
 (eodem fine) *reti dele* H

⁷And so, as far as these musical possibilities were concerned, there was no doubt at all amongst the earliest of God's worshippers, since every sacred melody which had low D as its final was classified as protus, and moulded itself on the protus whatever the extent of its range—large, medium or limited, whether perfect, imperfect, or pluperfect; a melody whose final was low E was deuterus, one with the low F final was the tritus, and a melody whose final was low G was of the tetrardus type.

⁸But at a later stage, the originators of the authentic and plagal modes assigned to those antiphons of limited range which occupy at least a diapente above their finals, the psalm beginnings and endings which fitted the authentic classification; for example, 'Quam pulchra es', 'Dominus defensor', and many others of a similar type. But to those which occupy a range of a diatessaron or less they assigned the intonations which are of the plagal variety; for example, 'De Sion exhibit lex', 'Fidelia', and several more which fall into this category.

⁹No plainsong melody then of whatever type—whether extended or limited—which is mostly pitched within the diapente above its final rather than the diatessaron, and does not go beyond it, and has nothing or little beneath that same final, this melody cannot be in a plagal mode. Likewise, any melody which similarly involves the diatessaron rather more than the diapente can never be in an authentic mode. ¹⁰For just as the uneven-numbered authentic modes are of more weight than the even-numbered plagal modes³², because of their movement towards the high registers, so the consonance of the diapente is nobler and more impressive than the small weak diatessaron, to the extent that it is larger and stronger than it is.

³²For 'par' and 'impar', see above Note 29.

¹¹Responsoria vero 'Sint lumbi vestri praecincti' ac 'Fulcite me floribus', quae videntur plagalia, versus tamen habent authenticorum, dubium non est quod nunquam ab antiquo statu suo quaecumque sint huiusmodi fuere mota, quoniam in illis non est inventa movendi causa. ¹²Quare? Quia versus eorum 'Qui chordam', qui erat antiqui proti, nunc autem primi toni, talibus cantibus optime convenit, nam licet in A gravi descendant, diapente nihilominus a D gravi frequentant et in *a* reperiunt acutum, ubi scilicet praefati versus habetur exordium.

¹³Quod profecto de 'Iuravit' antiphona cum reliquis similibus est dicendum, quae cum plagales nunc appareant, tetrardi tamen habent adhuc intonationes, sicut antiquitus, propter allegatam diapente, quam etsi multum non frequentent, in ea quod maius est inchoantur et primordium habent.

¹⁴En igitur omnia liquent et aperta sunt nobis, si vocum attendendo constitutiones, quas vera Boetii practica docet, ad antiquos semper recurramus tropos tonos sive modos, unde totum habemus.

12. praefati A
 13. nuncantiquitus *om* A
 14. apta *pro* aperta A
 recurramus *in marg* H

¹¹The responsories 'Sint lumbi vestri praecincti' and 'Fulcite me floribus' seem to be written in plagal modes, but they have verses which are in authentic modes; there is no doubt that any melody of this type was never moved from its ancient position because no reason for moving it had been discovered.

¹²Why? Because their verse, 'Qui chordam', which used to be classified under the old protus, but now belongs to the first tone, fits such melodies very well. For though these may extend down to low A, nevertheless they are mostly pitched within the range of a diapente up from low D; they also reach high *a* where, of course, we find the beginning of the said verse.

¹³The same thing must be said concerning the antiphon 'Iuravit', and the other similar examples which, although they now appear to be plagal, nevertheless, right up to the present, possess intonations of the tetrardus type as of old because of the diapente I have mentioned; though they make little use of it, their beginnings and their openings lie within it, which is more important.

¹⁴And so everything is explained and made clear to us if, by paying attention to the systems of pitches which the true practice of Boethius teaches, we constantly refer back to the ancient tropes, tones or modes—the source of all we possess.

[VII]

¹De planis cantibus in *a* vel *b* vel etiam in acuto *c* finientibus.

²Certi nunc de tropis antiquis et modernis ecclesiasticis, quod non sint aliud quam diapason species seu variae constitutiones, merito quaerimus hic unde nobis et alii multi cantus in *a*, pauci tamen in *b* vel in *c* terminantes acutis, qui nec ulla via mundi finire queunt cum suprascriptis octo tonis nisi mutant harmoniam. ³Si namque tonus octavus esse non potuit, nisi, cadens in ea diapason in qua cecidit primus, aliter finiendo tamen atque procedendo, quanto magis nonus, ut ita dicam, non erit neque decimus aut undecimus, si non de sequentibus diapason speciebus identidem fiant? ⁴Consequens est etenim, idque domina ratio deposcit, ut sicut quarta diapason species duos in se tonos diversos ob diversos eorum fines et motus excipit, ita quidem et aliae sex hoc agere valeant omnes, nec erunt iam toni solum undecim sed et quatuordecim, etsi tamen octo sint magis famosi suaviores ac plus exercitati.

⁵Plani cantus itaque quos in *a* finitos acuto vides aut in *b* aut in *c*, nihil aliud agunt nisi quod sicut octavus tonus quartam diapason speciem, sic et isti quintam sextam et septimam per diatessaron et diapente dividunt, quas utique tertius tonus quintus et septimus per diapente iam ac per diatessaron diviserant. ⁶Quod si dicas nostri patres cur aliquos etiam cantus in prima secunda tertiave diapason per diapente non exquisierunt ac per diatessaron, quas e contra videmus

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1. A 36v H 45r
 2. Caeteri *pro* Certi A
hic *in marg* H
cantus *om* A
 5. per³ *in marg* H

[VII]

¹The plainsong melodies which have their endings on high *a* *b* or *c*. ³³

²As regards the ancient tropes and the modern ecclesiastical modes, we are now certain that they are none other than the species of diapason, or its different systems. At this point, we rightly ask the source of many other melodies with endings on high *a*, or the few which end on high *b* or *c*. There is no way on God's earth that these can end within the said eight tones unless they change their melodic shape. ³For if the eighth tone was not able to exist unless, though it fell within the same diapason species as the first tone, it had a different final and a different development, even more a ninth, tenth and eleventh tone will certainly not exist, unless they similarly arise out of the successive species of diapason. ⁴The consequence is—and Reason our mistress demands this—that in the same way that the fourth species of diapason accommodates within itself two different tones—different because of their different finals and their melodic shapes—so the other six species may possess the same ability: there will then be not a mere eleven tones, but fourteen, though eight of them are more familiar to us, more pleasant, and used more often.

⁵You are aware that some plainsong melodies have their finals on high *a* *b* or *c*: these do nothing different from the eighth tone which divides the fourth diapason species; they in fact divide the fifth, sixth and seventh species by means of a diatessaron and a diapente—the species which the third, fifth and seventh tones had already divided by means of the diapente and the diatessaron. ⁶But if you ask why our forefathers did not also compose some melodies within the first, second or third diapason species, structured through the diapente and the diatessaron, species which on the contrary we see

³³ For Johannes' observations on such chants, see Introduction pp 52-55.

per diatessaron et diapente divisas, dico tibi lector id agere poterant si voluissent, sed si bene perpendis, quod clarum est intricabant, et ad finiendum inepta loca nimis habebant.

⁷Cum ergo negari non possit antiphonas 'Benedicta tu', 'Sicut murra', 'Dominus regit me', 'Media nocte', cum non paucis gradualibus, ut est 'A summo caelo', 'In sole posuit', et cum caeteris matutinarum responsoriis, ut 'Si bona suscepimus', et 'Vide quia tribulor', sicque de caeteris; cum, inquam, negari non possit omnes huiusmodi cantus in *a* finitos acuto secundam habere sub fine suo diatessaron speciem, aut duos pro maiori parte tonos, ac desuper primam diapente speciem et ultra minus aliquando semitonium, extremae dementiae est eos appellare quartos tonos et irregulares. ⁸Quartus namque tonus, si quae supra legisti recolis, secundam per diatessaron ac diapente distinguit diapason speciem, hi autem cantus quintam e diverso, si rem aequa lance penses. ⁹Quod si velis eos esse de quarto tono, quia quandam habent cum illo similitudinem in inchoando psalmos propter specierum diapente ac diatessaron affinitatem, dic etiam illos de secundo potius, quoniam illa duo responsoria matutinalia versus habent, quos nunc tonus habet secundus proprios, et si vis omnino quod sint irregulares eo quod non sint proti neque deuteri non triti non tetrardi, non plagales, non authentici, propter diversas eorum terminationes, dic et omnes cantus extitisse sine regula quicumque facti sunt antequam tales essent ab Ecclesia datae leges.

7. (tonos) aut (ac) *dele* H
 8. cantus *in marg* H
 9. inchoandum A

organised into the diatessaron diapente structure, then, dear reader, I say to you that they were able to do so had they so wished. But if you consider the matter carefully, these brought complications into a perfectly straightforward situation, and contained positions which were very unsuitable for placing finals.

⁷As for the antiphons 'Benedicta tu;', 'Sicut murra', 'Dominus regit me', and 'Media nocte'; also some graduals, like 'A summo caelo', 'In sole posuit', together with other matins responsories—for example, 'Si bona suscepimus', 'Vide quia tribulor' and so on, I say it is not possible to deny that all melodies of this type, which have their finals on high *a*, contain the second species of diatessaron below their finals—or more often than not, two tones. Above the finals comes the first species of diapente, with sometimes an extra minor semitone added. It is utter folly to classify these melodies as being in the fourth tone and irregular. ⁸For the fourth tone—if you remember what you have previously read³⁴—demonstrates the second species of diapason by means of the diatessaron diapente. But these melodies, on the contrary, demonstrate the fifth diapason species, if you consider the matter impartially. ⁹Now if you wish them to be classified as being in the fourth tone, on the grounds that they bear a similarity with it in the psalm beginnings because of the affinity between the diapente and diatessaron species, refer to them rather as being in the second tone, since those two matins responsories have verses which the second tone now claims as its own. Furthermore, if you prefer to regard them as wholly irregular because they do not fall within the protus, deuterus, tritus or tetrardus classifications, and are neither plagal nor authentic, and because they have a variety of finals, say that all melodies which were composed before such regulations were given us by the Church were produced outside the rules.

³⁴See above *Pars secunda* 1.6.24.

¹⁰Non ergo sunt huiusmodi cantus ab aliquo de suprascriptis octo tonis denominandi, nec irregulares quoquomodo reputandi, quin potius in *a* finiti dicendi sunt aut in *b*, sicut est offertorium 'Domine in misericordia tua' cum postcommunione 'Ab occultis', quae sunt in missis de Quadragesima, vel in *c*, sicut responsum 'Confortamini manus fatigate', cum responso de Cena Domini 'Conclisit vias meas', quoniam ab antiquo tales quales et nunc extiterunt quintamque diapason speciem qui in *a*, sextam autem qui in *b*, sed et qui in *c* septimam per diatessaron ac diapente multis etiam annis ante plagales et authenticos naturaliter ac regulariter occuparunt.

¹¹Hinc est quod omnes plagales ab his formam non dubium habuerunt, et quartus tonus ab antiquis in *a* finitis antiphonis psalmorum inchoationes, et secundus tonus versum suum a responsoriis in eodem *a* terminatis acceperunt, itemque sexti toni versus suos a responsoriis in *c* finitis, et sic de talibus, quoniam stultum foret nimis velle dicere vetustissimos cantus formam a novis, qui non erant adhuc, habuisse.

¹²Non te decipiat ergo lector omnium planorum commixtio cantuum, sed te regat inspectio veritatis et species consonantiarum; omnes enim paucis aut nullis exceptis commixti sunt, hoc est, tam ex suis propriis diatessaron ac diapente speciebus quam ex alienis compacti, propter quod et saepius esse videntur similes.

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10. nominandi *pro* denominandi A
sunt² *om* A
aut *pro* autem A
11. (in A) acutis *dele* H
in eodem..... responsoriis *om* A
12. commixtio *in marg* H
diatessaron ac diapente *in marg* H

¹⁰And so melodies of this type should not be classified by anyone under the above eight tones, and in no way should they be considered irregular; rather they should be said to have their finals on *a*, or *b*, as in the case of the offertory 'Domine in misericordia tua', with the postcommunion 'Ab occultis', which are contained in the masses for Lent. Yet again, they may have their finals on *c*, as in the responsory 'Confortamini manus fatigate', together with the responsory for the Last Supper 'Conclusit vias meas'. This is because these melodies existed from ancient times in the same form as now, and naturally and properly occupied the diapason species as follows: those with their finals on *a* the fifth species, those with their finals on *b* the sixth species, those with their finals on *c* the seventh through the diatessaron and the diapente. This was the case for many years before the invention of authentic and plagal modes.

¹¹It is for this reason that all plagal melodies clearly derived their structure from these: from the ancient antiphons with their finals on *a* the fourth tone obtained the psalm intonations; the second tone obtained its verse from the responsories having their finals on the same *a*. Likewise, the sixth tones derived their verses from the responsories having *c* as their final, and so on, for it would be very foolish to wish to claim that the oldest melodies take their shape from the new, which were not yet in existence.

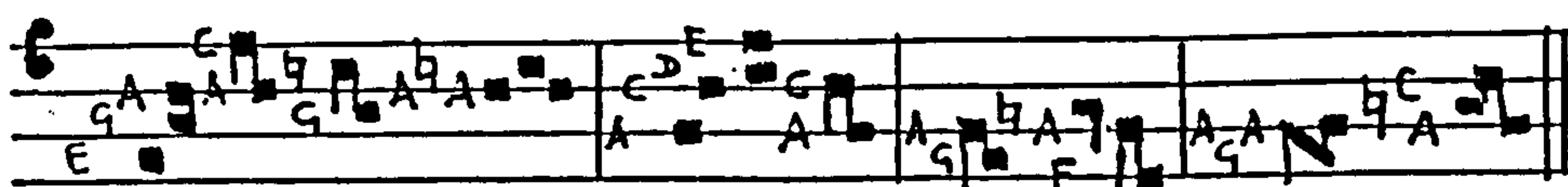
¹²And so, dear reader, let not this intermingling³⁵ of all the plainsong melodies confuse you; let an examination of the truth, together with the species of consonances, be your master. For all melodies are 'mingled', with few, or no exceptions—that is, they are made up as much from their own particular diatessaron and diapente species as from others as well, because of which they more often than not appear to be similar.

³⁵For 'commixti' and 'commixtio', see Introduction pp. 57-59.

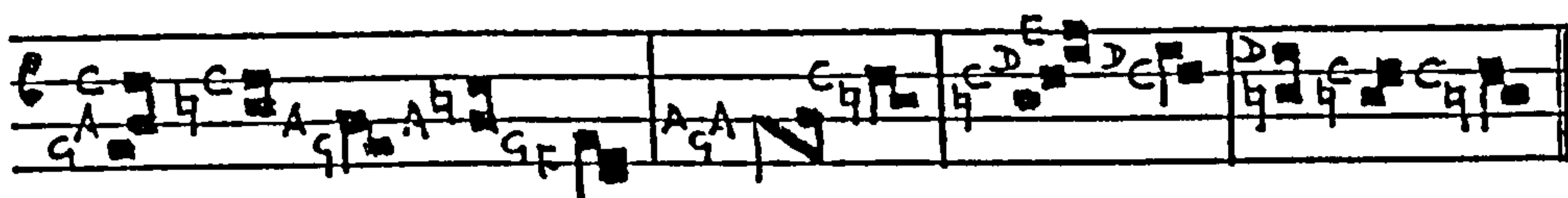
13Quis enim antiphonam 'Stetit angelus' et antiphonam 'Servi Domini' leviter unius esse naturae non crederet, eo quod quaelibet quartam diapente speciem in eius exordio non tamen propriam sed alienam, et, ut aiunt aliqui, commixtam habeat?

¹⁴Prima nihilominus in *a* finitur acuto, secunda vero terminatur in E gravi de quarto tono.

¹⁵Haec est formula cantuum in *a* finem habentium, per quos quinta diapason ex diapente resonat, subdita diatessaron.



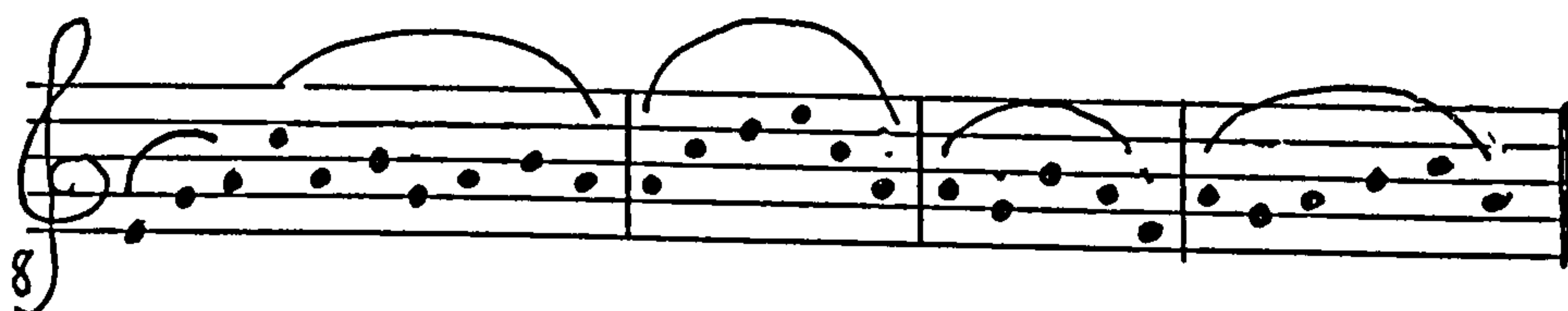
¹⁶Haec est formula cantuum in b quadro finitorum, per quos sexta diapason turpi subdito tritono falsum diapente sonat.



15. *in ex: b pro b* A. Final section in A reads AGAGABC.
A stops here on f. 37r, and resumes with the following example on f. 45v.

¹³For who would not readily assume that the antiphons 'Stetit angelus' and 'Servi Domini' are of the same nature, on the grounds that each of them has the fourth diapente species at its beginning, which is not however its proper species, but an alien one, or, as some say, a mingled one. ¹⁴Nevertheless, the first of these ends on high *a*, the second on low E, and in the fourth tone.

¹⁵Here is the formula for those melodies having *a* as their final. It is through these that the fifth diapason species sounds by means of a diapente, with a diatessaron underneath it.

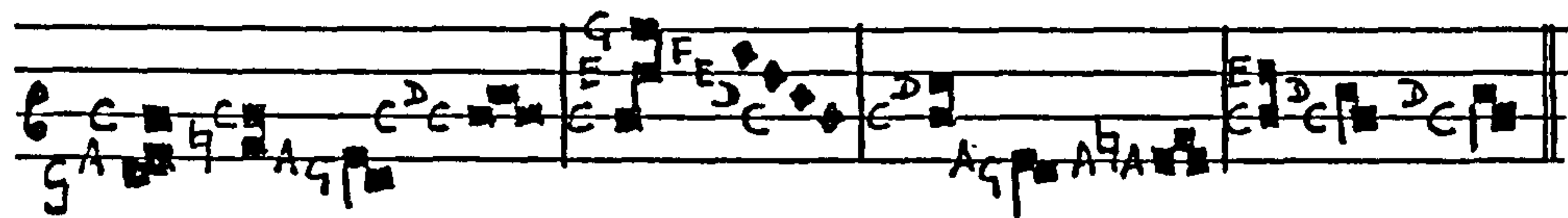


¹⁶Here is the formula for those melodies whose finals lie on square *b*.

Through these the sixth diapason species sounds—a species made up of the imperfect diapente with the dreadful tritone underneath it.



17Haec est formula cantuum in c finem habentium, quos septima diapason elevat ad diapente subdendo diatessaron.



¹⁷Here is the formula for those melodies which have *c* as their final, which the seventh diapason species raises up to the diapente, putting the diatessaron underneath.



[VIII]

¹Ubi per **b** quadrum canendum sit et ubi per **b** rotundum.

²Totum nunc quod de tropis tonis sive modis tractatum est vanum erit, si relicto naturali **b** quadro quibus in locis illegitimum exercere **b** rotundum oporteat non demonstrem; et quidem e naturali vocum ordine **b** quadrum oritur, **b** rotundum autem nisi bipartitus violenter fuerit tonus non habetur. ³Itaque sicut aeger amarum ad tempus pro solo morbo pellendo sumere cogitur poculum, quo pulso mox ad assuetum recurrit humanae naturae cibum, ita nos oportet pro sola tritoni duritia vitanda non paucis horribile nimis exercere **b** rotundum, quo tandem evaso periculo naturale prout dixi resumere **b** quadrum. ⁴Nam ut amara medicina non suo tempore sumpta corpus aegrum non solum non purificat, sed et sanissimum perturbat ac leviter occidit, sic et cantare per **b** rotundum ubi non sit tritonus omnem cantum deturpat, ac eius species confundit.

⁵Omnis enim cantus ecclesiasticus cuiuscumque toni sit aut ubicumque finitus unam diatessaron propriam habet ac unam diapente speciem, e quibus constare probatur, ut satis ostensum est, et quicquid in illo vides aliud non est suum sed commune magis aut alienum. ⁶Commune dico quidem totum quod est unicuique tono proprium et nihilominus aliis etiam mutuo datum, nec vereor praedicare prorsus alienum omne quod cadere probatur extra quodlibet diapason proprium.

-
1. A 45v H 47r
molle *pro* rotundum A
 3. vitanda *scripsi* vetanda HA
 4. sed *om* A
ubi non sit tritonus *in marg* H
eius species *supra lin* H

[VIII]

¹When to sing the square \natural and when the round b .

²Everything I have dealt with concerning the tropes, tones or modes will be in vain if I do not demonstrate in what contexts it is correct to abandon the natural square \natural and use the improper round b . The square \natural occurs in the natural order of pitches, but the round b cannot be obtained without involving the tone in a violent division. ³And so, just as the invalid is compelled to drink the bitter cup for a while solely in order to cure his illness, and once the illness is cured, he soon returns to food normal to human nature, so we need to make use of the round b which is absolutely distasteful on quite a number of occasions, merely to avoid the harshness of the tritone, and then, when the danger has been averted, to revert, as I have said, to the natural square \natural .

⁴For just as a bitter medicine which is taken at the wrong time not only does not cleanse the sick body, but also upsets the most healthy body and can easily kill it, so to sing a round b when there is no tritone upsets the design of any melody and distorts its species.

⁵For every liturgical melody, whatever its mode or its final, has one proper diatessaron and one proper diapente species from which it is made up, as it has been pointed out often enough, and whatever else you see in it does not belong to it alone, but is rather general or foreign. ⁶I use the term 'general' to apply to everything which is peculiar to each tone, but which nevertheless is also lent to the others; nor am I afraid directly to refer to as 'foreign' anything which is seen to fall outside the appropriate diapason.

⁷Verbi gratia: quis nesciat introitum 'Rorate caeli desuper' esse de primo tono cum non paucis istius modi planis cantibus, ac in quarta diapason specie seu constitutione per propriam eius primam diapente speciem a D gravi in *a* acutum, et per primam diatessaron ab eodem *a* acuto in D sequens formatum? ⁸Et tamen quia, sicut ante testatus sum, nulla diapason species multa per se potest, non solum in primo tono, sed etiam in omnibus fere planis cantibus, alias videbis quae non sunt illis propriae species non paucas, quas quidam moderni vocant admixtas, id est ad succurrendum altera alteri communes.

⁹Nam si praefatum introitum bene consideres, est in eo bis saltem tertia diatessaron species, a *c* primum, acuto descendens in G grave, dein e converso scandens in *c* acutum, habes etiam ibi quater aut quinquens tertiam diapente speciem ab F gravi in *c* acutum, et e diverso tritonum quoque semel, quae nullam prorsus habent cum primo tono proprietatem. ¹⁰Vox autem illa quam vides in C gravi, cum sit prima tertiae diapason constitutionis, aut tertia primae, vel secunda secundae, nec est intra quartam diapason speciem, quid habere potest cum primo tono proprium?

¹¹Hoc dixi quod iterum dico, quoniam vox quae cadit extra diapason cuiusvis toni proprium, tam gravis quam acuta, nihil habet cum illo, quamquam ab his qui cantus extruunt visa sit ob harmoniam dilatandam necessaria.

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- | | |
|-----|---|
| 7. | planis <i>in marg</i> H
diapente primam speciem A
a D gravi in A acutum <i>in marg</i> H |
| 8. | quidem <i>pro</i> quidam A |
| 9. | praefactum A
primum <i>om</i> A
in (G) <i>om</i> A
quinquens <i>scripsi</i> quinquies HA |
| 10. | secunda <i>om</i> A
nec est intraspeciem <i>supra lin</i> H |
| 11. | harmoniam dilatandam <i>in marg</i> H |

⁷For example: there can be no-one who does not know that the introit 'Rorate caeli desuper' belongs, like several other plainsong melodies of the same type, to the first tone, and is constructed within the fourth diapason species or system, which involves the appropriate first species of diapente from low D to high *a*, and the first diatessaron species from the same high *a* to the following *d*. ⁸However, as I have previously pointed out, because no diapason species can achieve much on its own, not only in the first tone, but also in almost all plainsong melodies, you will see several other species which do not properly belong to these melodies; these species some modern authorities call 'mixed', that is, they are of a general nature whose purpose is mutual support.

⁹For if you think carefully about the said introit, it contains at least two occurrences of the third diatessaron species—first descending from the first high *c* down to low G—then, on the other hand, climbing to high *c*. You also have in this melody four or five occurrences of the third diapente species—from low F to high *c*, and, on the other hand, one instance of a tritone. These have certainly no affinity with the first tone. ¹⁰That pitch which you see corresponding to low C is the first pitch of the third diapason system, the third pitch of the first, and second pitch of the second; it does not occur at all in the fourth diapason species; therefore what can it possibly have in common with the first tone?

¹¹I have said before what I say again: a pitch, whether it be high or low, which falls outside the appropriate diapason of any tone whatsoever, has nothing in common with that tone; nevertheless, it has been thought necessary for extending the melodic range by those who compose the melodies.

¹²Non igitur cantari debet 'Rorate caeli desuper' introitus missae scilicet per b rotundum, nisi propter solum illum quem habet in se tritonum, ne mutatis speciebus propriis totus cantus immutatus appareat, sicut in omnibus tonis quarta diapason species, quae propria primi toni est, illico prima fiat. ¹³Minus malum tamen est qualescumque cantus species concorditer immutare, quam voces discordes aggregando multas aures audientium offendere. ¹⁴Nec est quae discordem tritonum quoquomodo laudabilem approbet, aut aequanimiter sufferat ulla ratio; quin potius vana quae decipit ut plurimum homines sensualitas atque fallax opinio.

¹⁵Dicunt namque nostri moderni non cantemus per b molle nisi sit signatum, et alii dicunt immo cantemus cum dulce sit magis quam \flat quadrum, sic musicam ut vina probare putantes. ¹⁶Quae quaeso frivola sunt haec carissimi quaeve pueriles ac insipidae nimis opiniones? ¹⁷Ergone psalmos introituum de quarto tono canere debemus per \flat quadrum, qui toti iacent in tritono, dulcesque sanctorum et angelicas magis quam humanas modulationes, ob nostram ignorantiam, duras atque rusticanas reddere?

¹⁸Si nobis non licet absque signo puerorum ac rudium bene canere, non liceat etiam absque signo tubarum aut campanarum manducare. ¹⁹Dulce quidem est b rotundum ob quandam minoris semitonii molliciem, sed dulcius est mel quod nimie sumptum facit dolere ventrem.

12. scilicet *in marg* H
 quarta *scripsi* quartaque HA
 illico *supra lin* H
 15. dulce *om* A
 19. mele A

¹²Therefore, the mass introit 'Rorate caeli desuper' should certainly not be sung using the round b, unless it is to avoid the one occurrence of the tritone which that melody contains; this is so that the proper species are not changed, and the character of the whole melody is not changed, in the same way as in all the tones the fourth diapason species—proper as it is to the first tone—would immediately become the first diapason species. ¹³However, it is less of a sin to change any species of a melody in a musical way than to offend the many ears of the listeners by piling up disagreeable pitches. ¹⁴And there is no rationale which in any way at all commends the use of the discordant tritone or calmly tolerates its use; rather it is ill-founded sensibility and false judgement, which beguile mankind for the most part.

¹⁵Our contemporary authorities say that we should sing the softened b only when the relevant sign is present, but others say that we should sing it in any case on the grounds that it is sweeter than the square b , in this way thinking to judge music as they do wines.³⁶ ¹⁶I ask you, my dearest friends, what trifles are these, what thoughts are these, so childish and so tasteless?

¹⁷Should we therefore sing the psalms of the introits in the fourth tone, which lie entirely within the range of a tritone, using the square b , and through our own ignorance, render harsh and uncouth the melodies of the saints which are inspired by heaven rather than by man?

¹⁸If we cannot sing properly without the guidance of a sign³⁷ for boys and uneducated people, we should not likewise eat our meals without the signal from trumpets or bells. ¹⁹The round b is sweet because of a certain softness which the minor semitone possesses; honey is even sweeter, yet when eaten to excess, it produces stomach ache.

³⁶Prosdocius had warned of the indiscriminate use of the round b, and see *Contrapunctus* in CS 3 p. 198. See also Introduction p. 80 f. 50.

³⁷For a further appearance of 'signum', see below, sentence 20.

²⁰Sint ergo signa *b* mollis et *h* quadri pro pueris, et qui non intellegunt tonum ac semitonium rudibus; nos vero sectari decet rationem quibus sapere donavit Deus.


²¹Nec te moveat quod antiphona 'Vespere autem', et aliae paucae similes connexos in se duos habeant tritonos, quorum si primum fugeris, incidis in secundum, quoniam in plano cantu proferre tritonum, etsi sit error, non est mortale peccatum, quamvis hoc natura nunquam pateretur in comparatione gravis ad acutum. ²²Porro tritonus licet in omni cantu quovis in loco finito saepe nobis occurrat, in quinto tamen et sexto tono saepius ob tertiam, quae constat ex tritono minorique semitonio, diapente speciem, quapropter istud quinti toni responsorium hic ponitur pro tonis omnibus in exemplum.


²³Hic cantus de quinto tono, quotiens vides tritonum, tam ascendens quam descendens, canitur per *b* rotundum, sic et omnes plani cantus cuiusvis toni fuerint, nam quoquo modo tritonus occurrat debet destrui. ²⁴Versus iste per *h* quadrum decantatur fere totus, sed finem ac repetendam per *b* molle concinimus, non in solo quinto tono sed in locis similibus.

(Exemplum in pagina 458)

..

-
20. nun *pro* nos A
 sectari decet rationem *in marg* H
 21. duos *om* A
 fugieris A
 22. tono *supra lin* H
 23. Occurerat *pro* occurrat A

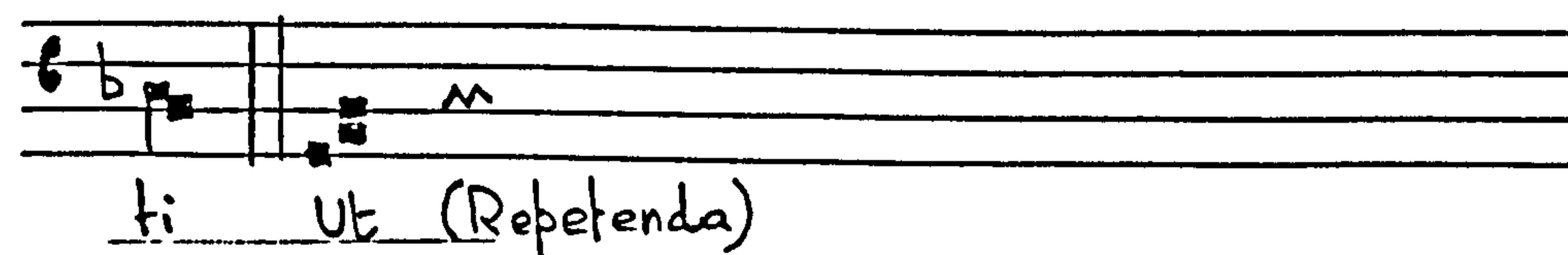
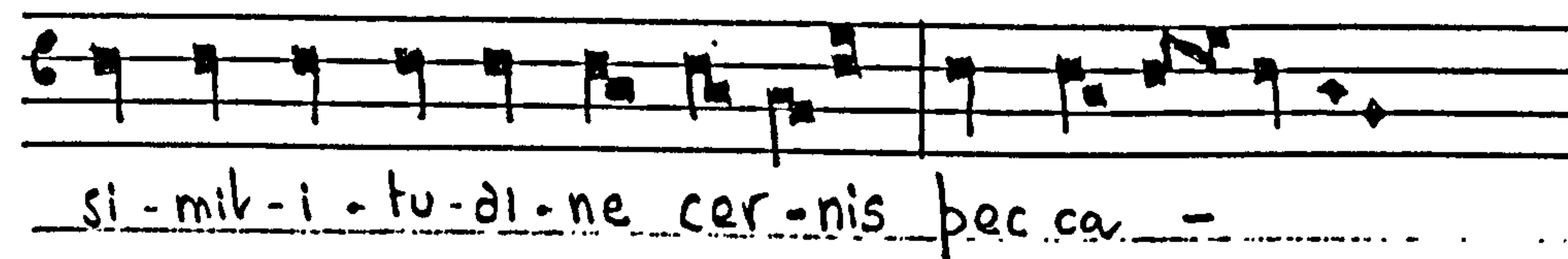
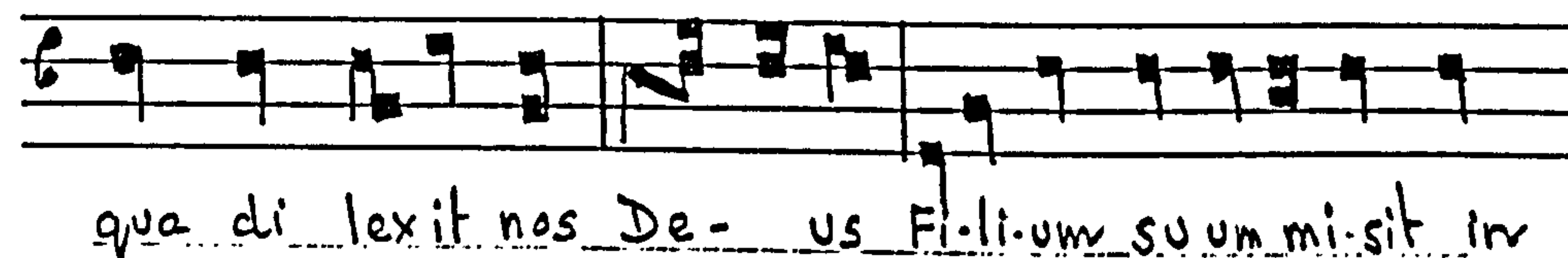
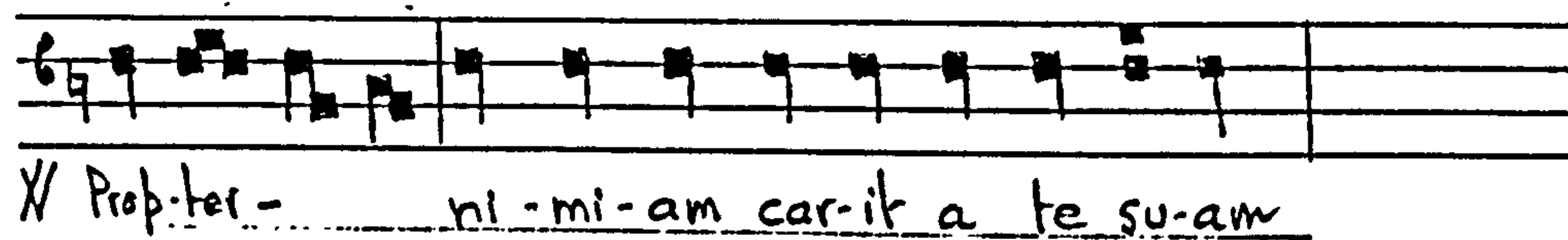
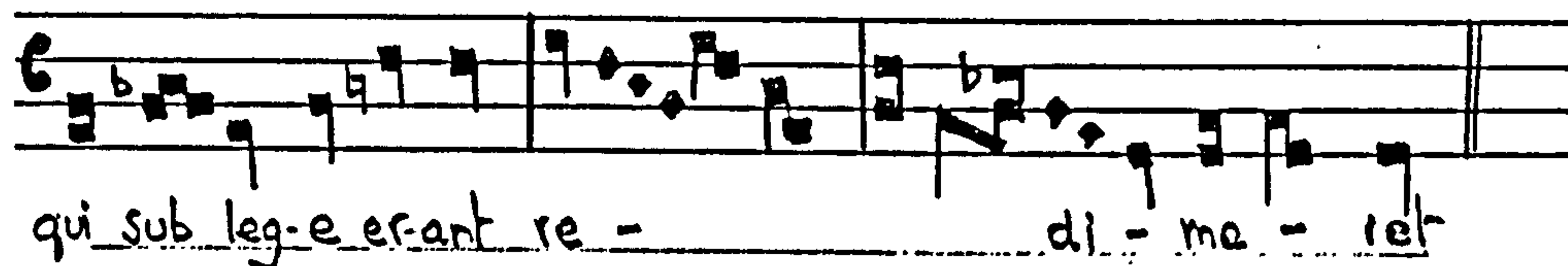
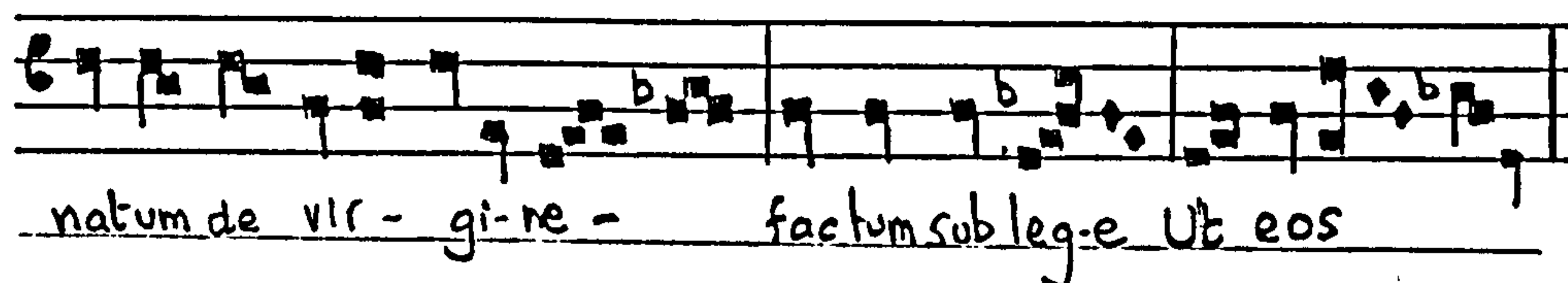
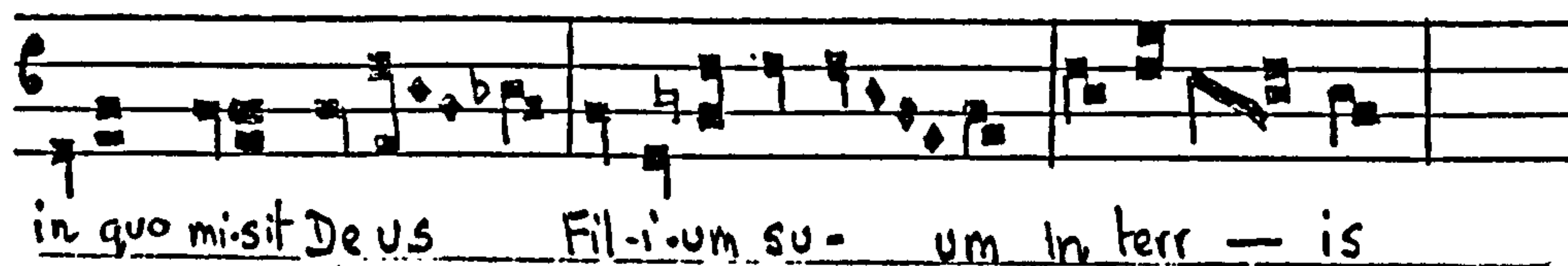
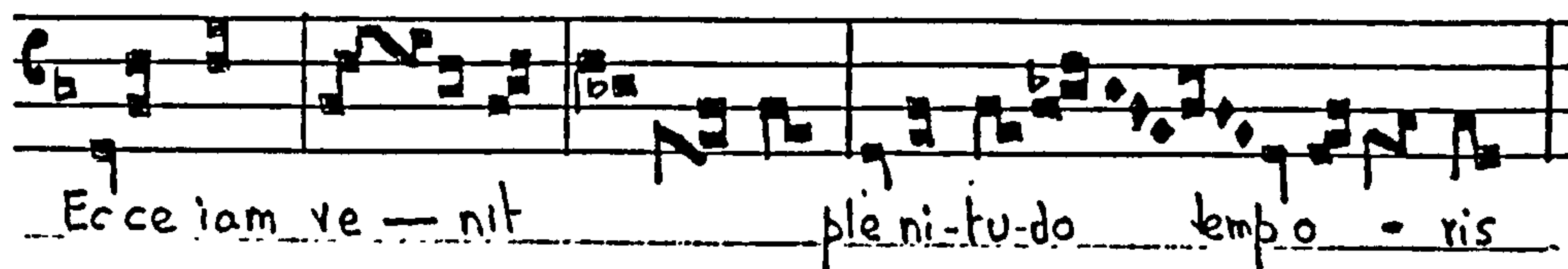
²⁰And so, let the signs both for the soft b and square  be for the benefit of boys and uneducated individuals who do not understand about the tone and semitone;³⁸ we, however, should follow reason, since God has bestowed upon us the gift of sense. ²¹Nor should it disturb you that the antiphon 'Vespere autem', together with a few similar examples, contains two conjunct tritones, and if you avoid the first, you fall into the second; for to produce a tritone in plainsong is not a mortal sin, though it is an error; though nature would not ever allow this, when relating the low and high pitches of an interval. ²²In every melody then, whatever the position of its final, a tritone may often occur, but its occurrence is more frequent in the fifth and sixth tones because of the third species of diapente which is made up of the tritone and minor semitone. Consequently, this responsory of the fifth tone is placed here as an example for all the tones.

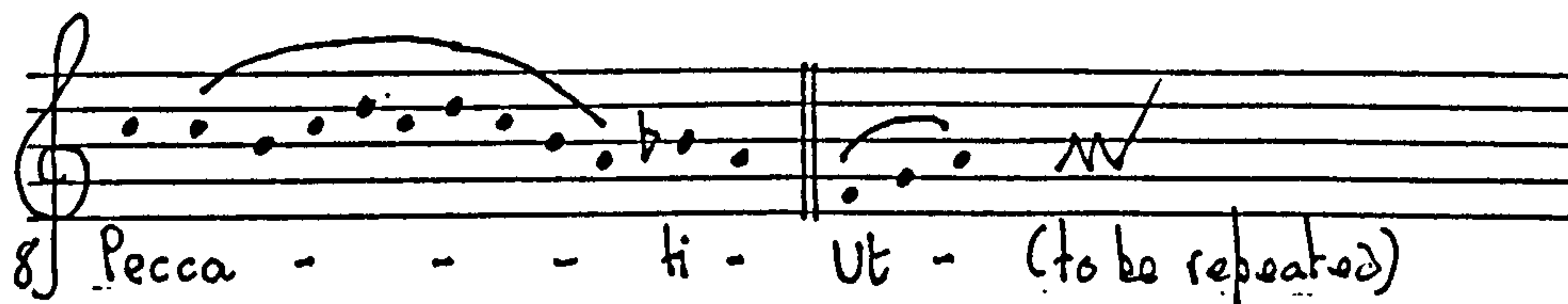
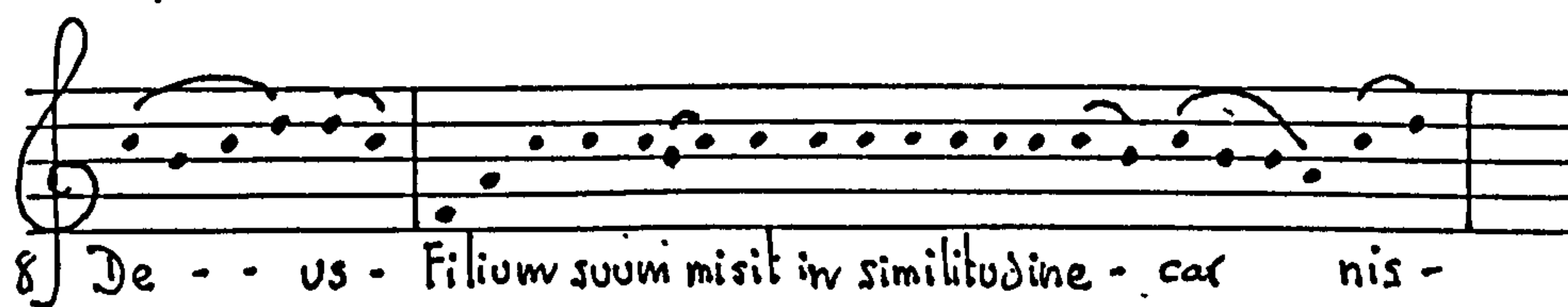
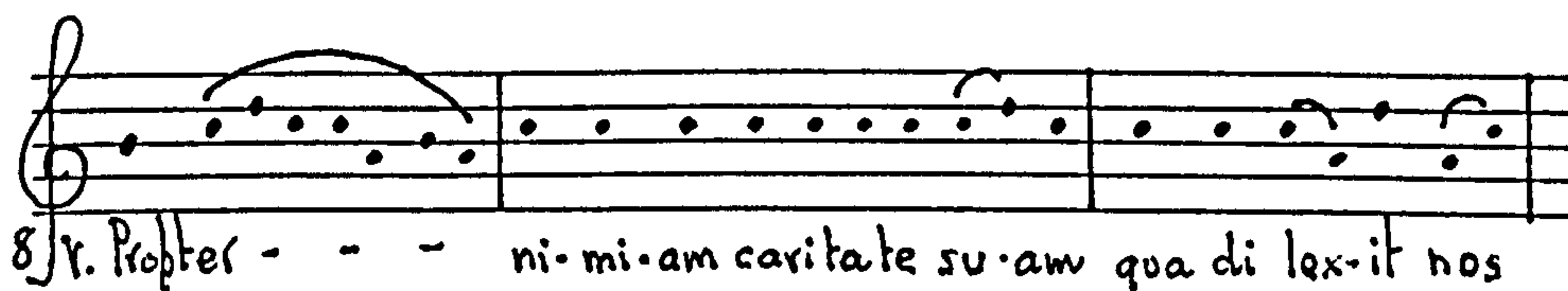
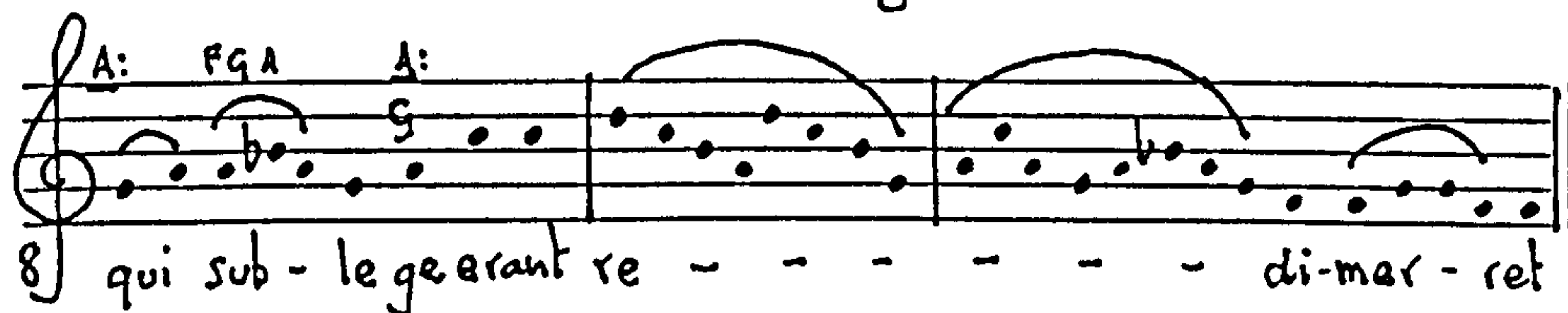
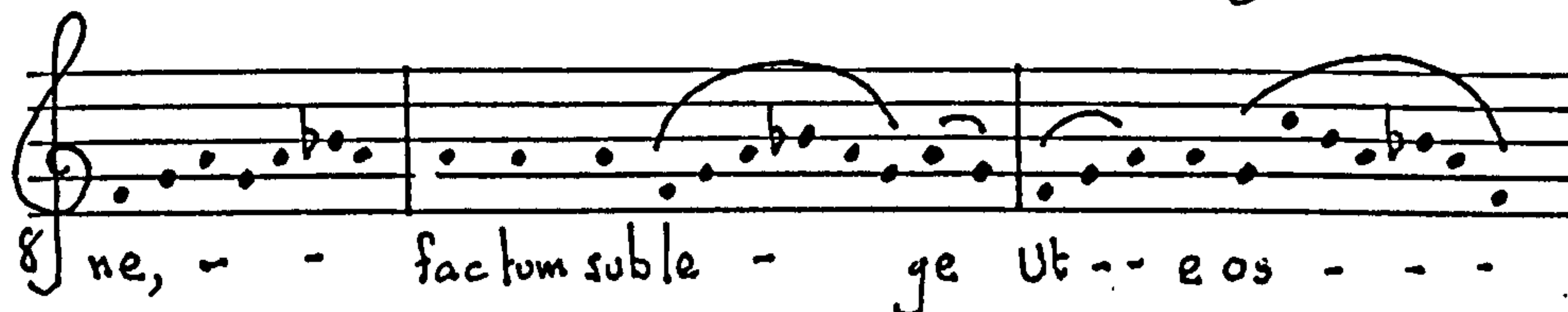
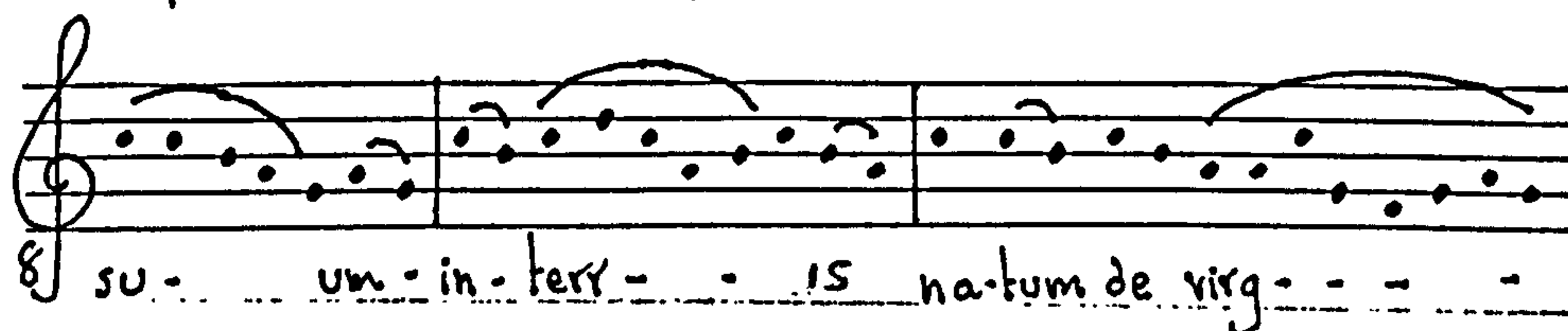
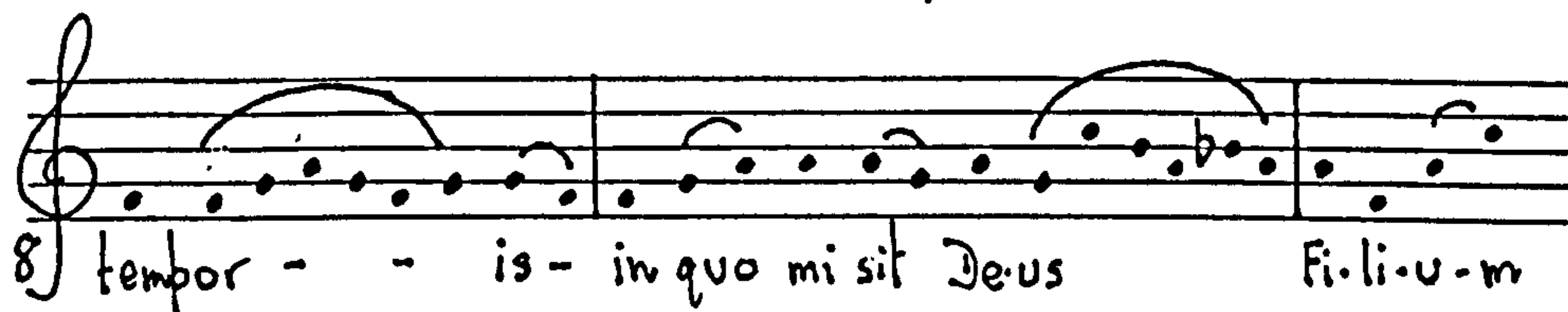
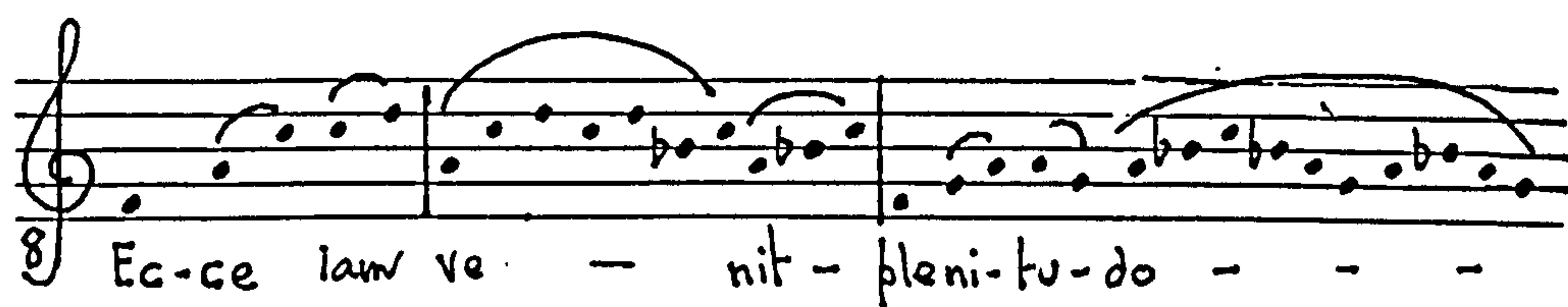
²³This chant belongs to the fifth tone: it is sung with the round b whenever you see the interval of the tritone—ascending or descending. The same applies to all chants in whatever tone, for in whatever mode the tritone occurs it should be eradicated.³⁹ ²⁴Almost the whole of that verse is sung using the square , but we sing the round b at the end and at the repeat, not only in the context of the fifth tone, but also in similar places.

(Example on page 459)

³⁸For the notion that the round b need not always be notated, see Ellsworth *Berkeley MS44*: Virtuliter licet semper non signentur. Cf. also Tinctoris *Liber* in CSM 22,1 p. 74: Neque tunc b mollis signum apponi est necessarium, immo si appositum videatur, asinum esse dicitur.

³⁹For Marchetto's view of the incidence of the round b in the fifth mode, see *Lucidarium* 11.4.138-9.





[IX]

¹De responsoriis a suo fine et suo versu cuius toni sint praesto discernendis.

²Hucusque de cunctis ecclesiae cantibus tractatum est satis diligenter, ac de qua conditione sint, aut unquam esse potuerint iuxta parvam nostram intelligentiam declaratum; ³attamen qualiter a solo fine suo discerni praesto soleant, et a suis versibus responsoria matutinarum ac introitus missarum, sicut et antiphonae quidem a suis EUOUAE vel 'Saeculorum' non est adhuc aliquo in loco demonstratum.

⁴Aliud est enim musicum aut cantorem valde practicum species in quocumque cantu subtiliter indagare consonantiarum, et aliud virum simplicem ut cantet in ecclesiis praesto cuius toni sit omnis cantus inspecto fine solo discernere. ⁵Quod quia doctissimos Ecclesiae Christi musicos ac huius divinae modulationis auctores latere non potuit, ita rite cuncta moderati sunt certis distributis regulis, ut non solum cantor doctissimus, sed et quisque vel parum sciolus cito quod suum est in Dei laudibus providere valeat.

⁶Etenim de quatuor diapason diatessaron constitutionibus, ut supra legere potes, quatuor tantum primo fecere tonos, quibus et quatuor aptavere versus dissimiles pro responsoriis matutinalibus, quorum primus in *a* semper inchoans acuto, primam ad finem proti reddebat diapente speciem, et est nunc primi toni nostri versus.

1. A 39r H 48v

ac *pro a* A

2. adictione *pro* conditione A
potuerunt A

3. alio *pro* aliquo A

4. (inspecto) solo (fine) *del* H

5. ut non solum cantor doctissimus *in marg* H
queat *pro* valeat A

6. pro responsoribus matutinalibus *in marg* H

[IX]

¹How one can readily decide on the tones of the responsories by their finals and their verses.

²So far I have dealt diligently enough with all ecclesiastical melodies; I have also discussed, within the limits of my humble ability, the present nature of these melodies, and whatever past status they could have had. ³However, I have not so far at any point explained how the matins responsories and the introits of the masses are quickly distinguished by the finals alone and by their verses, just as the antiphons are distinguished by their EUOUAE or 'Saeculorum' endings. ⁴It is one thing for the musician or the singer—with all their vast practical experience—to make a detailed analysis of the species of consonance in any melody, and quite another matter for the ordinary man to decide quickly upon the tone of each melody, so that he may sing in church merely by looking at the finals. ⁵Now because this could not escape the notice of the most scholarly musicians in the Church of Christ and composers of this heavenly music, they quite rightly organised the whole thing by means of clearly defined rules, with the result that anybody with the merest smattering of knowledge, as well as the most experienced singer, could make his own contribution without any difficulty to God's praises.

⁶For at the beginning, as you can read above, they constructed only four tones out of the four diapsason diatessaron systems;⁴⁰ to these they fitted four different verses for the matins responsories, of which the first always began on the high *a* and employed the first diapente species with reference to the protus final. This now is the verse of our first tone.⁴¹

⁴⁰For Joannes' account of what he regards as the four early tropes, see above *Pars secunda* 1.4.3-5.

⁴¹Cf below for similar descriptions of the other authentic modes: sentences 7, 8, 9 and 11.

⁷Secundus autem versus in *c* primam acuto ponebat voculam, distans a fine deuteri sex vocibus, et est idem quem nunc habet tertius tonus.

⁸Tertius versus primam vocem in eodem *c* quidem habebat, tertiam a fine triti resonans diapente speciem, et hunc habet hodie noster quintus tonus.

⁹Quartus vero semper in *d* sumpsit acuto primordium, quartam a fine tetrardi faciens diapente speciem, et est ille versus quem nunc habet septimus tonus.

¹⁰His igitur quatuor versibus antiquissimis quatuor nostris authenticis in hunc modum attributis, quis nesciat et alios quatuor versus post haec inventos pro quatuor plagalibus? ¹¹Verumtamen in hoc differre noscuntur, quod primi quatuor a fine sui responsorii semper in diapente sursum inchoant, excepto tertio tono, qui secundam deserens diapente speciem ob tritonum scilicet in ea latentem, duram atque difficilem ad enuntiandum, minus rursum, ut audisti, capit ultra semitonium.

¹²Quatuor autem alii versus plagales primam in diatessaron aut infra vocem habentes nunquam illud transeunt. ¹³In his ergo diapente diiudicat authenticos ac in similibus, plagales vero diatessaron e contra demonstrat, nec est ubi versus omnium planorum cantuum terminentur curandum, quoniam cuius toni fuerit omnis cantus originalis cantus eius erit et versus qui sequitur, ita quod etiam alleluia, tam paucas assuetum habere voces, versum suum iudicabit ubicumque finem habeat.

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7. idem *scripsi* isdem HA
 9. ut *pro* et A
 11. sursum *in marg* H
 discernens *pro* deserens A
 ad enuntiandum *in marg* H
 sursum *pro* rursum A
 ultra *supra lin* H
 13. e contra *in marg* H
 cuius toni cantus fuerit omnis cantus A
 cantus *del* H
 etiam quod ita A
 finem *om* A

⁷The second verse placed its first pitch on high *c*, ranging six pitches from the deuterus final, and is the same one which the third tone now occupies.

⁸The third verse had its first pitch on the same *c*, producing from the tritus final the third diapente species; our fifth tone now occupies this.

⁹The fourth verse always began on high *d*, forming the fourth diapente species from the tetrardus final, and this is the verse which the seventh tone now occupies.

¹⁰And so, once these four ancient verses had been fitted in in this way to our four authentic modes, everyone must realize that another four verses were invented later to fit the four plagal modes. ¹¹However, they are seen to differ in the following respect—that the first group of four always begins from the final of their responsory and has the upward range of the diapente, except in the case of the third tone which abandons the second diapente species because of the tritone which lurks inside it, which is harsh and difficult of execution. As you have heard, it takes upon itself an extra minor semitone. ¹²However, these other four plagal verses have their first pitch on the diatessaron or below, and never go beyond this range. ¹³So, in these and similar melodies, it is the diapente which determines the authentic modes, while the diatessaron, on the other hand, indicates the plagal forms.⁴² It does not matter where the verses of all the plainsong melodies end, since the tone to which every original melody belongs will determine the tone both of that melody and the succeeding verse—in the same way as the alleluia, which usually contains so few pitches, will look to see where its verse has its final.

⁴²See below sentences 15-18 for descriptions of the plagal modes.

¹⁴Itaque responsorium in D gravi finitum, si versus eius in *a* inchoet acuto, mox authenticum est ac de primo tono, sed si primam infra diatessaron vocem habuerit, ille versus plagalis est de secundo.

¹⁵Sic in E finitum responsorium habens in acuto *c* versum erit de tertio, sed si in diatessaron de quarto.

¹⁶Finitum autem in F ac in *c* versum habens erit de quinto, sed si sub aut infra diatessaron de sexto.

¹⁷Quod si finiatur in G gravi, versus autem inchoetur in acuto *d*, septimus tonus est, et si in diatessaron aut infra primam vocem habuerit octavus.

¹⁸Nec te moveat responsorium 'Ecce nunc tempus acceptabile', quod natura plagale videtur, habens versum authenticum; est namque de quatuor veteribus tropis sicut et alia plura necdum a statu pristino mutata, cum in nullo discordent antiqui versus cum illis. ¹⁹At contra responsorio 'Mirabilis Deus', et quibusdam aliis nondum etiam ab antiquo ritu suo mutatis, visum est Ecclesiae musicis non bene competere versus illos antiquos, ob quod eis dedere plagales noviter ab ipsis inventos.

-
14. Ita quod *pro* Itaque A
(secundo) tono *add* A
15. responsorium *in marg* H
erit *supra lin* H
18. ullo *pro* nullo A

¹⁴And so, a responsory which ends on low D immediately becomes authentic, and belongs to the first tone if its verse begins on high *a*, but if it has its first pitch below the diatessaron pitch, its verse is then plagal, and in the second tone.

¹⁵Likewise, a responsory which ends on E, and whose verse begins on high *c*, will be in the third tone, but if the diatessaron accommodates the first pitch, the melody will be in the fourth tone.

¹⁶Further, a responsory which ends on F, and whose verse begins on *c* will belong to the fifth tone, but to the sixth if the first pitch falls on the diatessaron pitch, or below it.

¹⁷But if it ends on low G, but the verse begins on high *d*, it is the seventh tone, and if the diatessaron pitch, or a pitch below accommodates the first pitch, it will be the eighth tone.

¹⁸Neither should you be disturbed by the fact that the responsory 'Ecce nunc tempus acceptabile'—which by its nature seems to be plagal—has its verses in an authentic form; for it is one of the four tropes of antiquity, like several other melodies which have not yet undergone a transformation from their original state, because the ancient verses are in no way incompatible with them. ¹⁹On the other hand, it seemed to Church musicians that that the ancient verses were not compatible with the responsory 'Mirabilis Deus', and certain other melodies which likewise have not undergone a change from their original structure, and for this reason they assigned to them the plagal verses which they had newly invented.

[X]

¹De plagalibus et authenticis antiphonis a suo fine et 'Saeculorum' aut EUOUAE discernendis.

²Nunc autem ad antiphonas, quae magis necessariae sunt, veniam propter psalmos utpote frequenter in divinis laudibus elevandos inchoandos aut intonandos. ³Quae licet eo naturali modo quo caeteri cantus discerni valeant, ac eisdem verissimis specierum diapente diatessaron atque diapason subiaceant iudiciis, ordinatum est pro maiori facilitate nihilominus a viris ecclesiasticis quatenus omnis antiphona quae fuerit authentica suum EUOUAE vel 'Saeculorum' a suo fine sola diapente vel quando plus semitonio cum diapente prout de responsoriis diximus elevatum habeat, et si sit plagalis in diatessaron aut infra iugiter incipiat.

⁴Omnis igitur antiphona finem in D gravi faciens, ac primam sui 'Saeculorum' aut EUOUAE voculam in *a* acuto ponens, haud dubium quod authentica sit, ac de primo tono per consequens, ut in his patet novem antiphonis, quarum hic fines atque principia ponam cum singulis EUOUAE vel 'Saeculorum' differentiis secundum nostrum ordinem Carthusiae videlicet, quem in hoc non puto differre multum ab aliis. ⁵Ut dum et alias haec habere principia repereris antiphonas non paucas, eas etiam esse de primo tono non dubites, et quod eadem habere debeant 'Saeculorum' aut EUOUAE certum teneas, sicque de tonis omnibus.

-
1. A 39v H 49v
(au)*tsupra lin* H
 3. hisdem *pro* eisdem A
 5. haec principia habere A

[X]

¹Distinguishing the plagal and authentic antiphons according to their finals and by their 'Saeculorum' or EUOUAE.

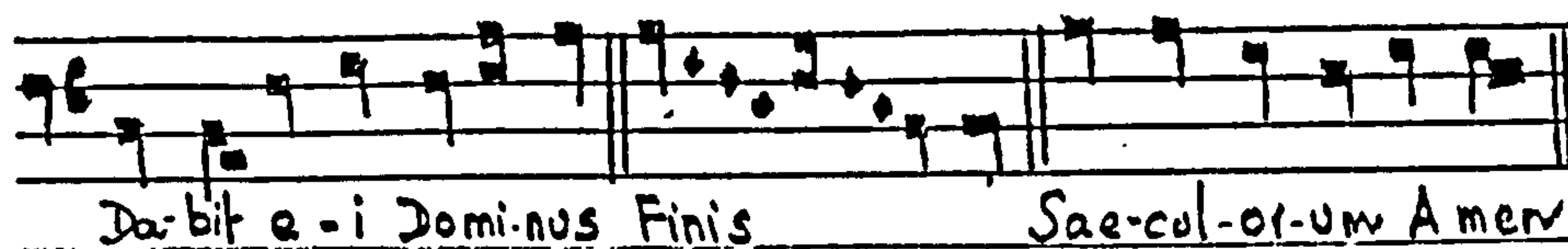
²I shall now come to deal with the antiphons which serve a greater need, because the psalms are so frequently in divine praise lifted up, begun and intoned. ³Though they can be distinguished by the natural way by which other melodies are judged, and though they are subservient to the same perfectly valid criteria of the diatessaron, diapente and diapason species, nevertheless, for greater ease, men of the Church decided that every antiphon which was authentic should have its EUOUAE or 'Saeculorum' pitched at only the distance of a diapente above the final, or at the most, a semitone plus diapente, as we said for the responsories. Further, if an antiphon was plagal, it should always begin on the diatessaron, or a pitch below that.

⁴Every antiphon then which ends on low D and places the first pitch of its 'Saeculorum' or EUOUAE on high *a* is without doubt an authentic form, and consequently of the first tone, as is demonstrated in the following nine antiphons, whose endings and opening statements I shall put here, together with their individual EUOUAE or 'Saeculorum' *differentiae* according to our own Carthusian order, which I do not consider, at least in this respect, to be very much different from the others. ⁵And when you discover that several other antiphons have the same openings, do not doubt that they also belong to the first tone, and be confident that they have the same EUOUAE or 'Saeculorum'. The same principle applies to the rest of the tones.

⁶Prima primi toni differentia:



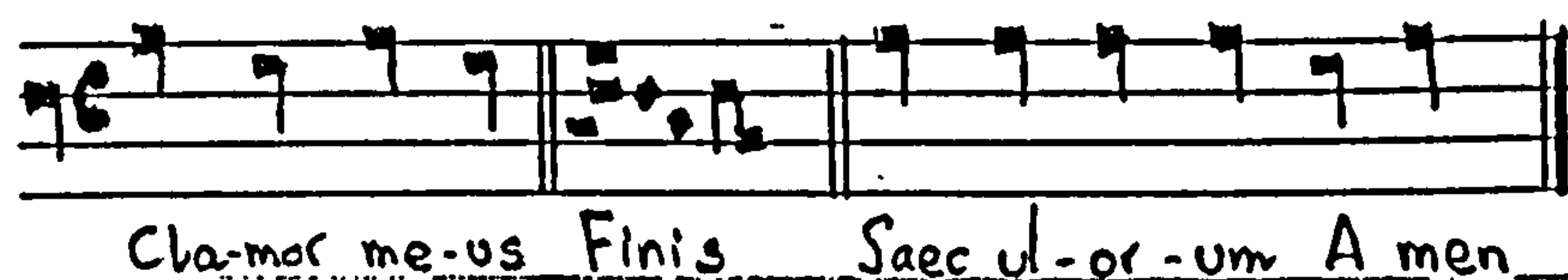
⁷Secunda:



⁸Tertia:



⁹Quarta:



¹⁰Quinta:



¹¹Sexta:



¹²Septima:



⁶The first *differentia* of the first tone:




8 Pri - mum quaeri te - regnum De i - Finis Saeculorum A - men

⁷The second:



Da - bit - e i Do mi - nus Finis Saeculorum A - men.

⁸The third:




Caelum et terra trans i - bunt Finis Saeculorum A - men

⁹The fourth:



Clamor meus Finis Saeculorum A men -

¹⁰The fifth:




Do mi - nus Finis Saeculorum A men -

¹¹The sixth:



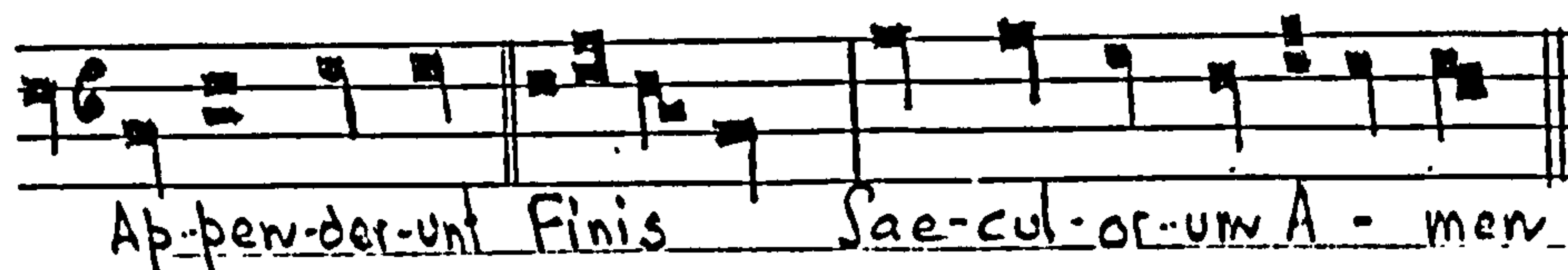
Spec i - o - sus Finis Saeculorum A - men

¹²The seventh:

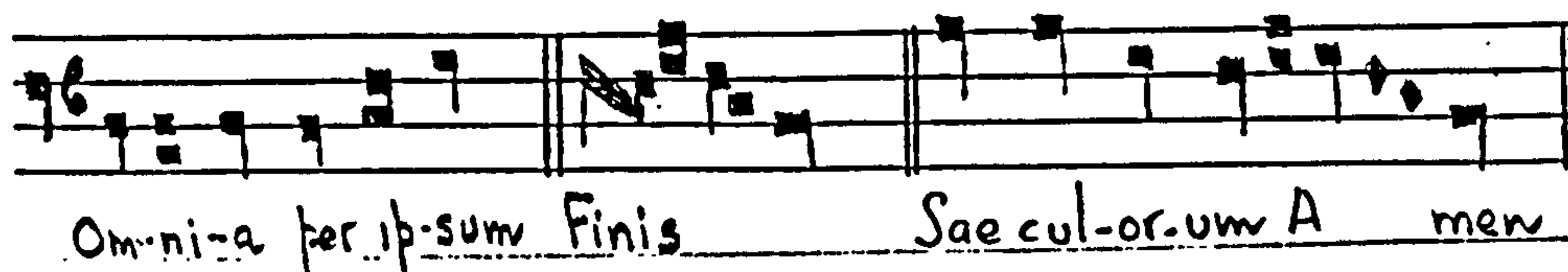


Ec - ce vere Finis Saeculorum A men -

13 Octava:

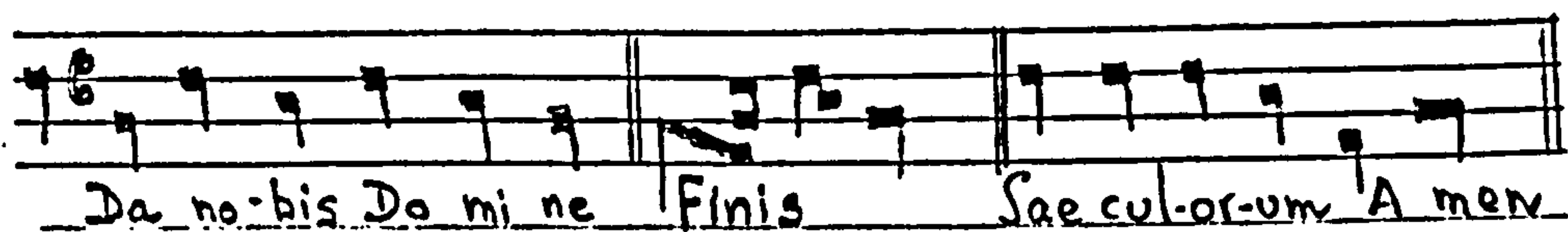


14 Nona:



15 Omnis autem antiphona similiter in D gravi finita, quae suum EUOUAE vel 'Saeculorum' in F gravi, quod infra diatessaron est, inceperit, absque dubio plagalis erit, ac de secundo tono, qui solam hanc habet, quam hic subscribo pro non paucis similibus, differentiam.

16 Sola secundi toni differentia:



17 Omnis antiphona vero non in D sed in E gravi finita, cuius EUOUAE vel 'Saeculorum' in acuto c, quod est ultra diapente minus semitonium, inchoaverit, authentica veraciter haberi debet, ac de tertio reputari tono, prout in his quinque patet antiphonis quinque suas differentias demonstrantibus.

-
15. incepit *pro* inceperit A
 17. antiphona *om* A
 (in D) quidem (sed) *dele* H
 quo ultra est A

¹³The eighth:

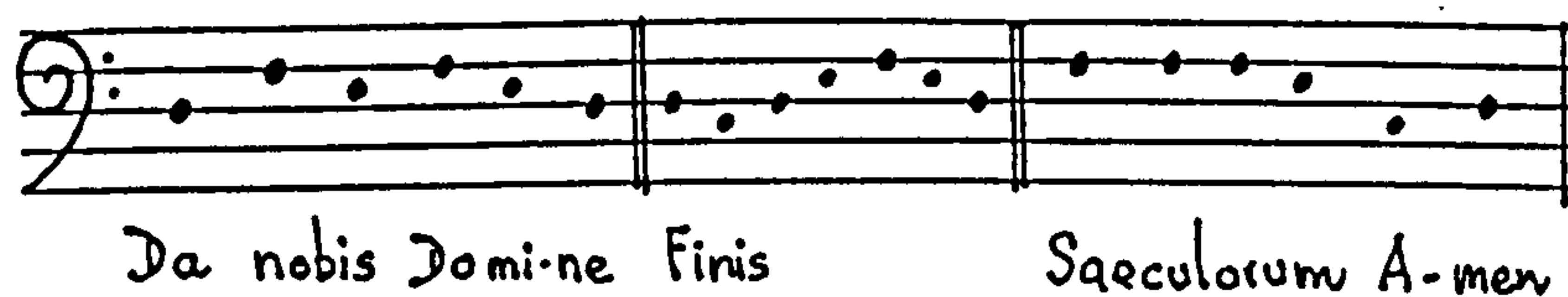


¹⁴The ninth:



¹⁵Every antiphon which similarly ends on low D, and which begins its EUOUAE or 'Saeculorum' on low F which is lower than the diatessaron, will undoubtedly be plagal and of the second tone; this tone has only this one *differentia* which I write below to serve for several similar examples.

¹⁶The only *differentia* of the second tone:

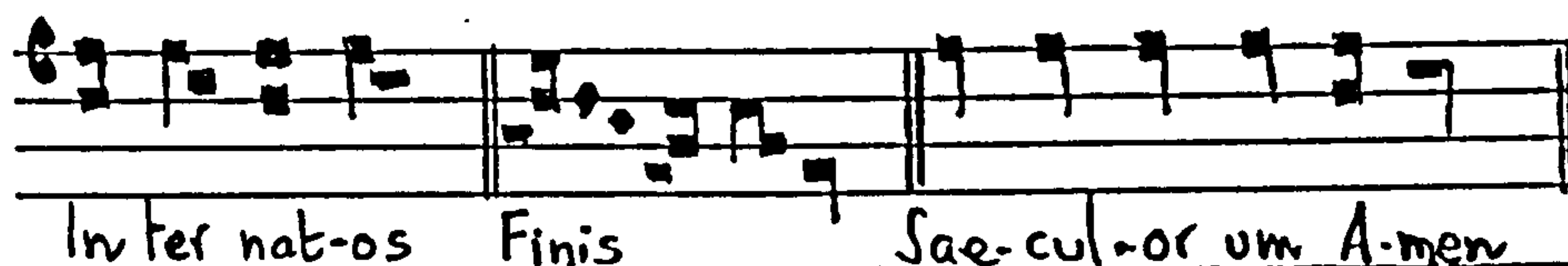


¹⁷Every antiphon which ends not on low D but on low E, and whose EUOUAE or 'Saeculorum' begins on high c, which is a minor semitone above the diapente, this ought truly to be regarded as authentic, and to be considered as of the third tone. This is made clear in the following five antiphons which demonstrate their own five *differentiae*.

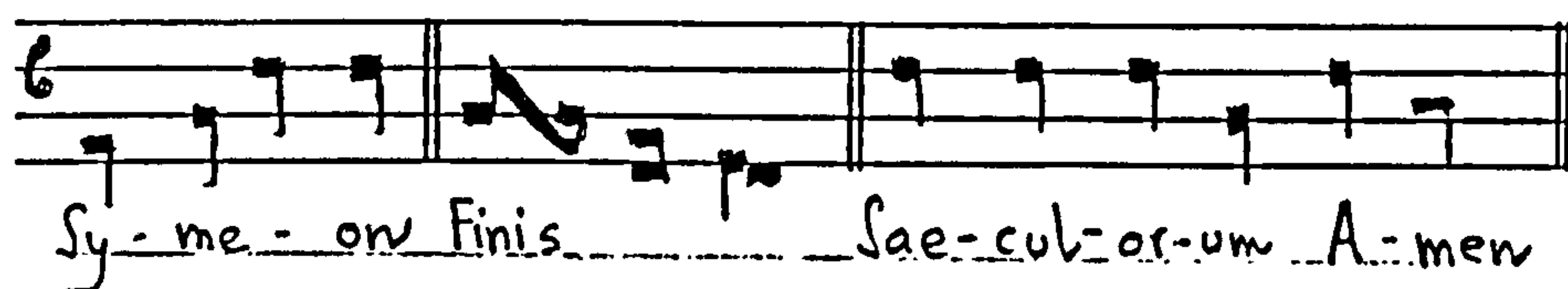
18 Prima tertii toni differentia:



19 Secunda differentia:



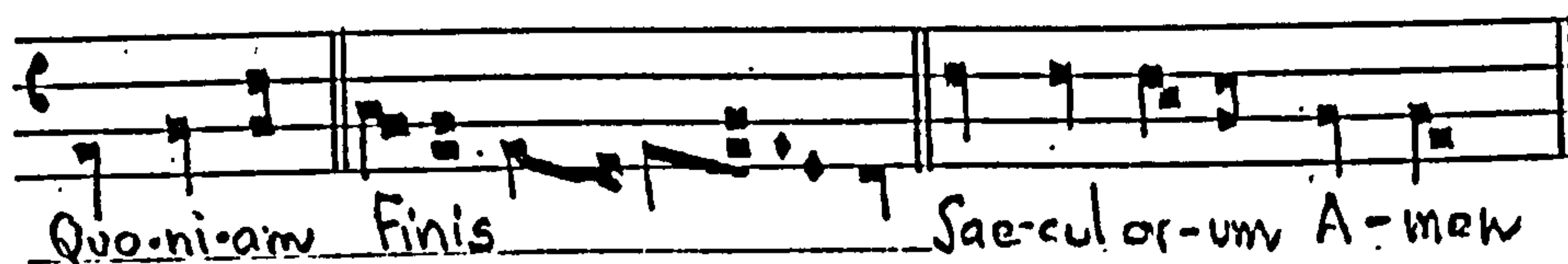
20 Tertia differentia:



21 Quarta differentia:



22 Quinta differentia:



23 Omnis autem antiphona similiter in E gravi finita, cuius EUOUAE vel 'Saeculorum' non in *c* sed in *a*, quod est diatessaron, inceperit acuto, plagalis siquidem est ac de quarto tono, sicut in his tantummodo tribus apparet suis quas hic pono differentiis.

18The first *differentia* of the third tone:

Et respiciem - - tes - Finis Saeculorum Amen

This musical staff shows a melody in treble clef with a key signature of one flat (B-flat). The melody is divided into three measures by bar lines. The first measure contains the notes E4, F4, G4, A4, Bb4, A4, G4, F4, E4, with a slur over the last four notes. The second measure contains the notes D4, C4, Bb3, A3, G3, F3, E3, D3. The third measure contains the notes C4, D4, E4, F4, G4, A4, Bb4, A4, G4, F4, E4, with a slur over the last four notes. The lyrics 'Et respiciem - - tes - Finis' are under the first two measures, and 'Saeculorum Amen' is under the third measure.

19The second *differentia*:

In - ter na - tos Finis Saeculorum A - men

This musical staff shows a melody in treble clef with a key signature of one flat (B-flat). The melody is divided into three measures by bar lines. The first measure contains the notes E4, F4, G4, A4, Bb4, A4, G4, F4, E4, with a slur over the last four notes. The second measure contains the notes D4, C4, Bb3, A3, G3, F3, E3, D3. The third measure contains the notes C4, D4, E4, F4, G4, A4, Bb4, A4, G4, F4, E4, with a slur over the last four notes. The lyrics 'In - ter na - tos Finis' are under the first two measures, and 'Saeculorum A - men' is under the third measure.

20The third *differentia*:

Sy - me - on Finis Saeculorum Amen

This musical staff shows a melody in treble clef with a key signature of one flat (B-flat). The melody is divided into three measures by bar lines. The first measure contains the notes E4, F4, G4, A4, Bb4, A4, G4, F4, E4, with a slur over the last four notes. The second measure contains the notes D4, C4, Bb3, A3, G3, F3, E3, D3. The third measure contains the notes C4, D4, E4, F4, G4, A4, Bb4, A4, G4, F4, E4, with a slur over the last four notes. The lyrics 'Sy - me - on Finis' are under the first two measures, and 'Saeculorum Amen' is under the third measure.

21The fourth *differentia*:

Vi di - speci - o - sa Finis Saeculo - rum Amen

This musical staff shows a melody in treble clef with a key signature of one flat (B-flat). The melody is divided into three measures by bar lines. The first measure contains the notes E4, F4, G4, A4, Bb4, A4, G4, F4, E4, with a slur over the last four notes. The second measure contains the notes D4, C4, Bb3, A3, G3, F3, E3, D3. The third measure contains the notes C4, D4, E4, F4, G4, A4, Bb4, A4, G4, F4, E4, with a slur over the last four notes. The lyrics 'Vi di - speci - o - sa Finis' are under the first two measures, and 'Saeculo - rum Amen' is under the third measure.

22The fifth *differentia*:

Quoniam - Finis Saeculo - rum - A men -

This musical staff shows a melody in treble clef with a key signature of one flat (B-flat). The melody is divided into three measures by bar lines. The first measure contains the notes E4, F4, G4, A4, Bb4, A4, G4, F4, E4, with a slur over the last four notes. The second measure contains the notes D4, C4, Bb3, A3, G3, F3, E3, D3. The third measure contains the notes C4, D4, E4, F4, G4, A4, Bb4, A4, G4, F4, E4, with a slur over the last four notes. The lyrics 'Quoniam - Finis' are under the first two measures, and 'Saeculo - rum - A men -' is under the third measure.

23Every antiphon which similarly ends on low E, and whose EUOUAE or 'Saeculorum' begins not on high *c* but on high *a*, which is the diatessaron, is plagal and of the fourth tone, as is shown just in the following three *differentiae* which I here quote.

²⁴Ad haec quid dicent moderni cantores? ²⁵Huic etenim quarto quasdam et alias antiphonarum in *a* finitarum attribuunt differentias, nulla prorsus rei veritate moti nisi forte propter similem quam habere videntur in intonando psalmos concinentiam.

²⁶Ad quos ego: si debeat antiphona 'Benedicta tu', quae finitur in *a*, pluresve similes esse de quarto tono propter eam quam habent cum antiphona 'Servi Domini' conformitatem quae finitur in E gravi, sint et omnes antiphonae sexti toni de primo tono, quae tanto maiorem cum illo videntur habere similitudinem, quanto suos psalmos identidem intonant ac in eodem loco. ²⁷Nam etsi praedictae similes appareant antiphonae in sono, finire tamen ac suos psalmos intonare nequeunt in eodem loco.

²⁸Praeterea quando non erat iste quartus tonus, haec precor antiphonae tunc erant aut non erant? ²⁹Insanis procul dubio quisquis audes dicere quod non erant. ³⁰Immo quia tunc erant, de quo quaeso quatuor illorum antiquorum tonorum esse potuerunt? ³¹Nunquam enim in D gravi, nunquam in E, nunquam in F, nunquam in G finierunt, nec adhuc finire possunt, et quae non fuerunt unquam de tonis antiquis nulla ratione cogente dicuntur esse de novis.

-
- | | |
|-----|---|
| 24. | antiphonarium <i>pro</i> antiphonarum A |
| 26. | firmiter <i>pro</i> finitur A
esse <i>om</i> A |
| 28. | prepterea <i>pro</i> praeterea A
precor <i>in marg</i> H
erant ² <i>om</i> A |
| 29. | quisquis proculdubio A
quo <i>supra lin</i> H |
| 30. | antiquorum illorum A |
| 31. | enim <i>om</i> A |

²⁴What will modern singer say to all this? ²⁵Certain other *differentiae* of the antiphons which end on *a* they also assign to this fourth tone, in no way motivated by the truth of the matter, unless it is because of the similar harmony which they seem to have in intoning the psalms.

²⁶My response to them is as follows: if the antiphon 'Benedicta tu' which ends on *a*, together with several similar examples, needs to be in the fourth tone because of the affinity which these have with the antiphon 'Servi Domini' which ends on low E, then all sixth tone antiphons should be labelled as in the first tone, since they seem to have a greater similarity with it, in so far as they intone their own psalms repeatedly and within the same range. ²⁷For even if the antiphons which I have mentioned appear to be similar in the way they sound, they cannot finish and intone their own psalms in the same place.

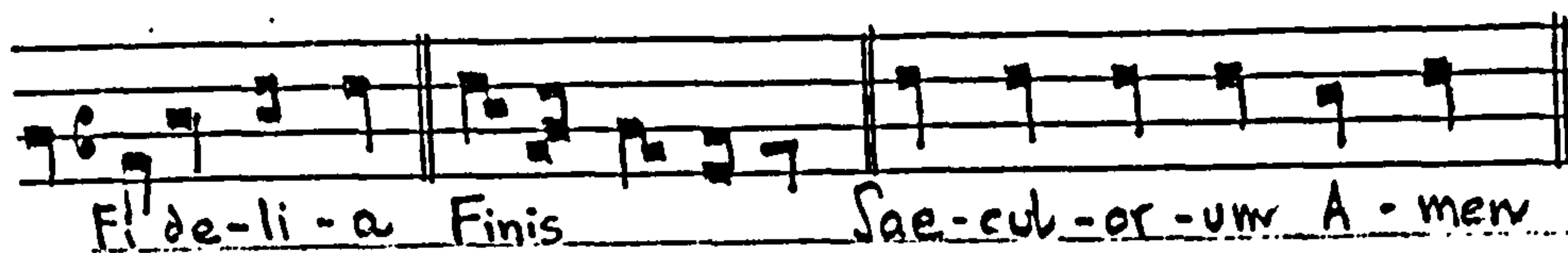
²⁸Furthermore, I ask you at this point, at the time when the fourth tone did not exist, did these antiphons exist or not? ²⁹Clearly it would be madness for anyone of you to dare to claim that they did not. ³⁰And so, since they did exist at that time, from which one of the four tones of antiquity could they have originated? ³¹For never did they end on low D E or F, or even G, and cannot end to this day, and no logical process can compel anyone to claim that antiphons which never were among the four ancient tones can be said to be among the new.

³²Cum ergo nil habeant antiphonae in *a* finitae cum quarto tono, quin potius antiphona quarti toni qui de novis est, formam suos intonandi psalmos ab illis antiquis habuit quemadmodum et a primo tono sextus, non sunt hic earum describendae differentiae, sed expleto cum suis differentiis octavo tono depingendae.

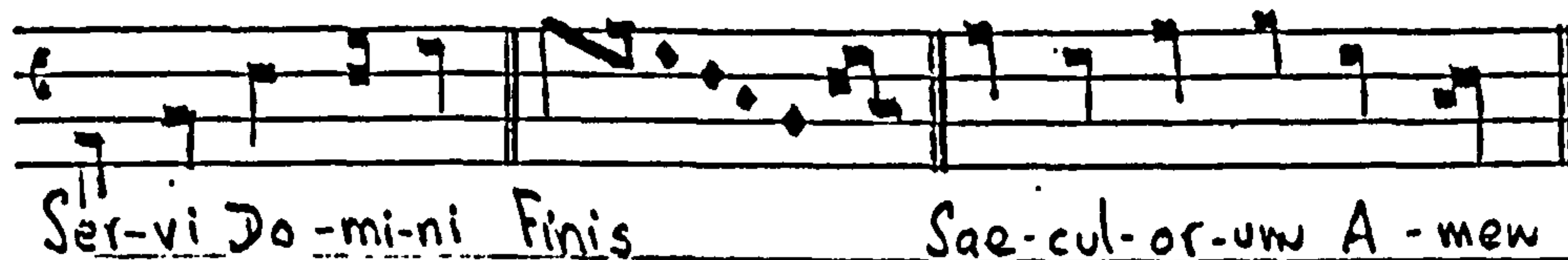
³³Prima quarti toni differentia:



³⁴Secunda differentia:



³⁵Tertia differentia:



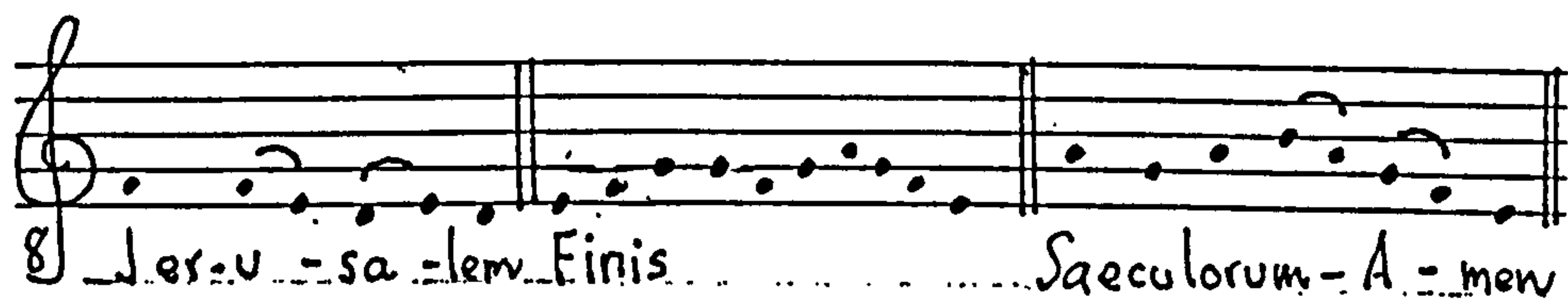
³⁶Omnis antiphona vero non iam in D vel in E sed in F gravi finita, si suum EUOUAE vel 'Saeculorum' in *c* acuto incipiat, authentica est ac de quinto tono, qui solam hanc, quam hic subscribo, consuevit habere differentiam.

32. antiphona *scripsi* antiphonae HA

33. in ex. *b* om A

³²Since therefore the antiphons which end on *a* have nothing in common with the fourth tone, but rather an antiphon in the new fourth tone took its form of intoning its psalms from the ancient modes in the same way as the sixth from the first, their *differentiae* should not be described at this point, but portrayed after the eighth tone, with its own *differentiae*, has been dealt with.⁴³

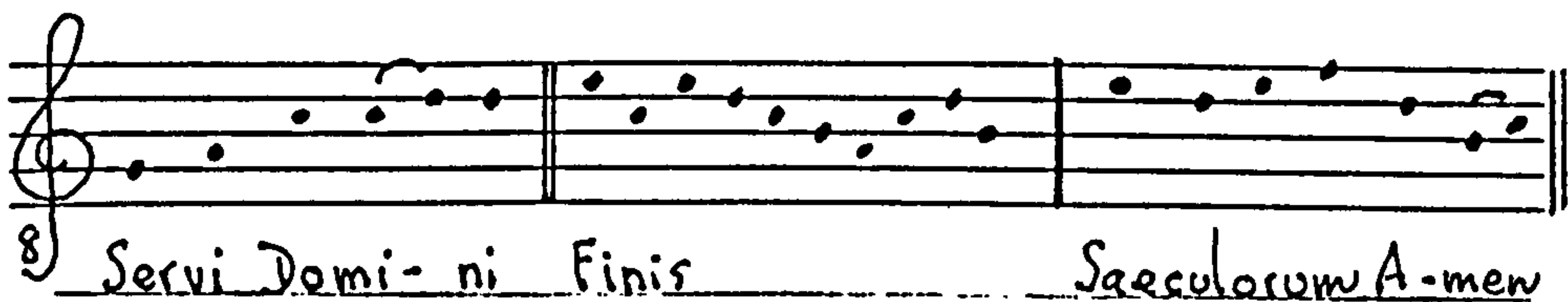
³³The first *differentia* of the fourth tone:



³⁴The second *differentia*:



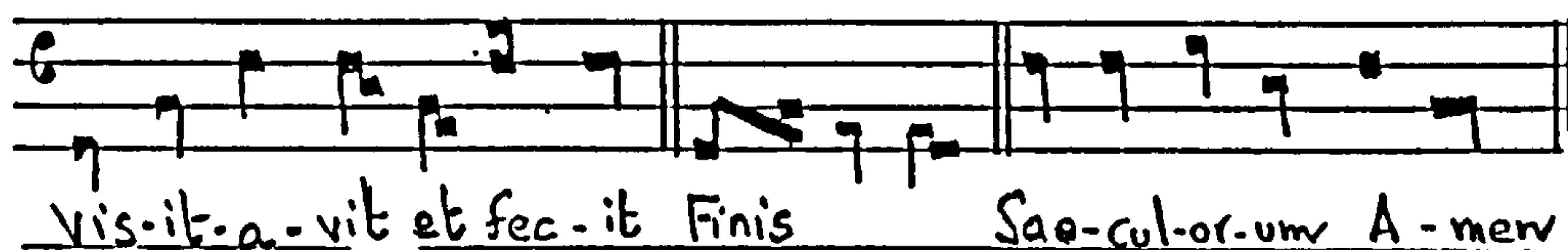
³⁵The third *differentia*:



³⁶Now every antiphon which ends not on D or E, but on low F, and whose EUOUAE or 'Saeculorum' begins on high c, is authentic and of the fifth tone. This usually had but this one *differentia*, which I quote below.

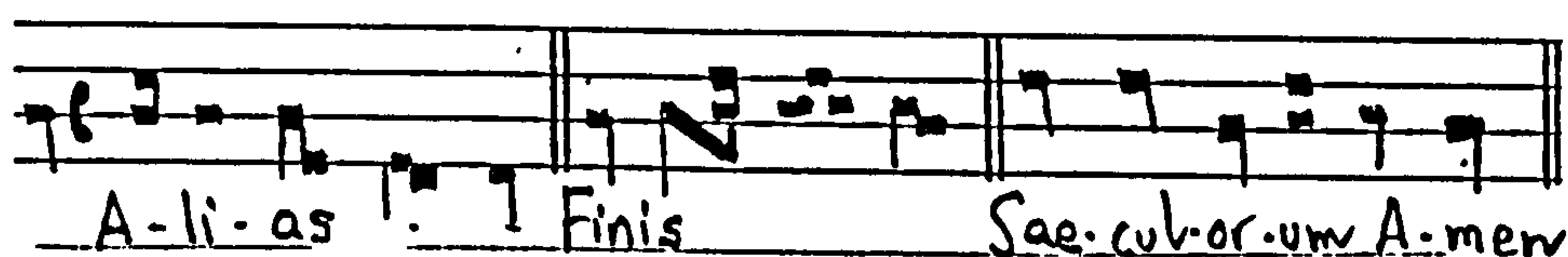
⁴³See below 1.11.56-61.

37 Sola quinti toni differentia:



38 Omnis etiam antiphona similiter in F gravi finita, si suum EUOUAE vel 'Saeculorum' in *a* acuto, quod est infra diatessaron, inceperit, plagalis est ac de sexto tono, qui solam hanc quoque subscriptam habere solet differentiam.

39 Sola sexti toni differentia:

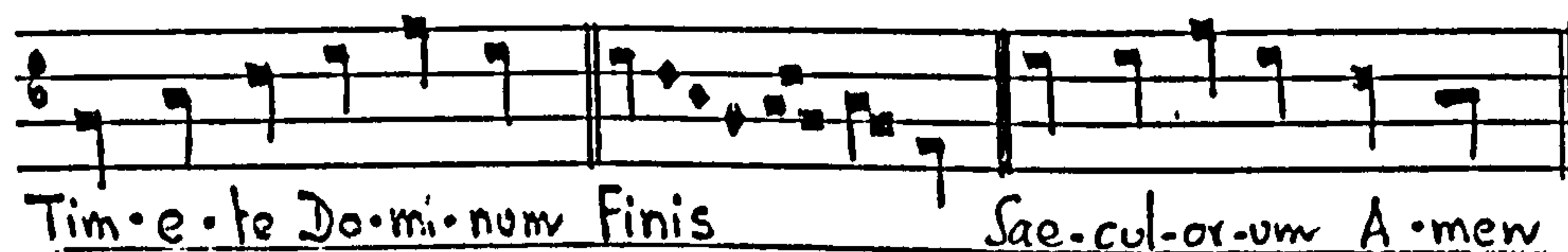


40 Omnis tandem antiphona quae fuerit in G gravi terminata, si suum EUOUAE vel 'Saeculorum' in *d* coeperit acuto, authentica est ac de septimo tono, qui quinque tales quales hic describo solet habere differentias.

41 Prima septimi toni differentia:



42 Secunda differentia:



38. incepit *pro* inceperit A

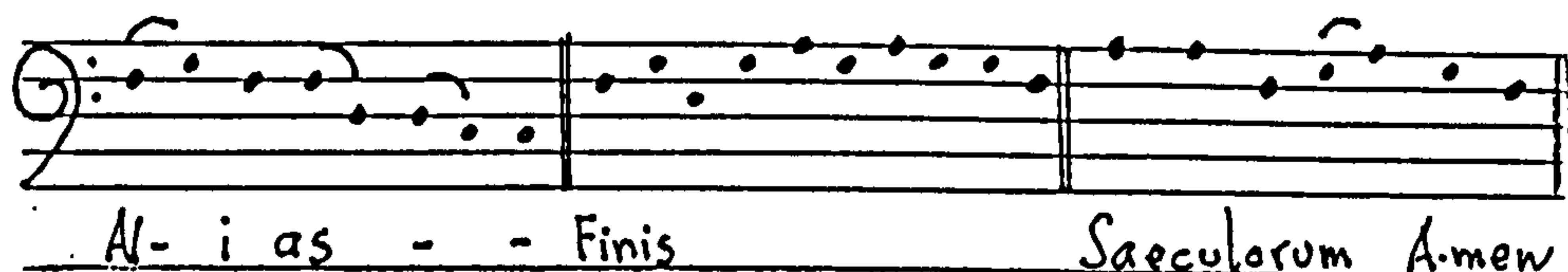
40. cepit *pro* coeperit A

37 The only *differentia* of the fifth tone:



38 Similarly, every antiphon which ends on low F, but whose EUOUAE or 'Saeculorum' begins on high *a* which is below the the diatessaron, is plagal and of the sixth tone. This also usually has only the one *differentia*, appended below.

39 The only *differentia* of the sixth tone:

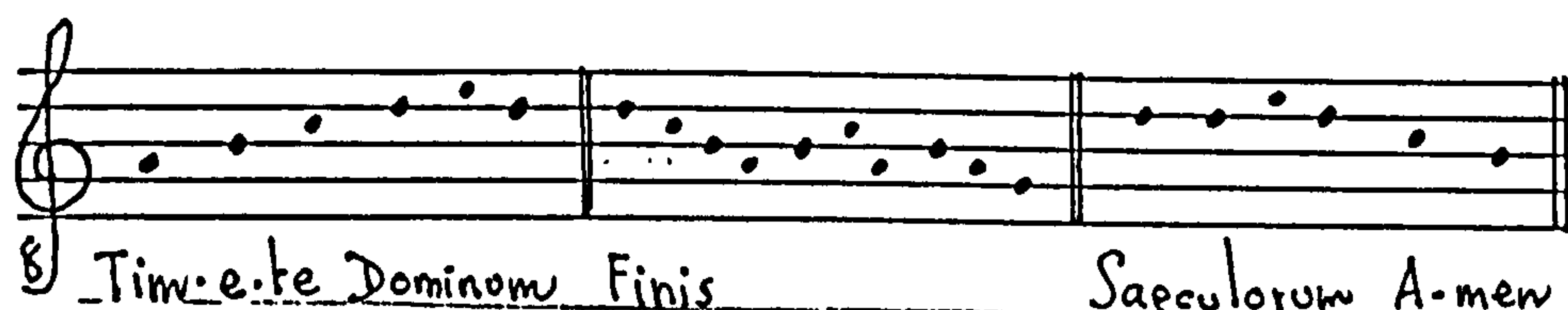


40 Lastly, every antiphon which ends on low G, and whose EUOUAE or 'Saeculorum' begins on high *d*, is authentic and of the seventh tone. This usually has five *differentiae*, such as I quote here.

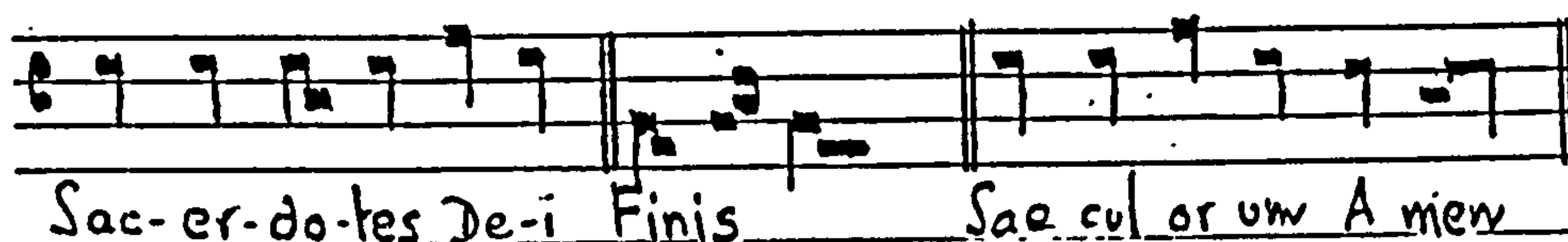
41 The first *differentia* of the second tone:



42 The second *differentia*:



43Tertia differentia:



44Quarto differentia:



45Quinta differentia:

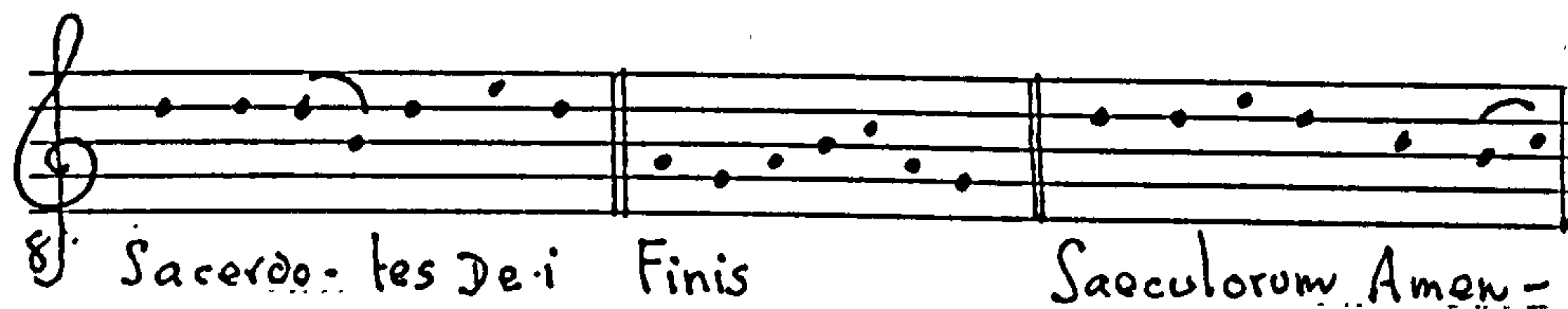


46Omnis autem antiphona similiter in G gravi finita, cuius EUOUAE vel 'Saeculorum' in c principium habeat acuto, plagalis est ac de octavo tono, qui quatuor quas subscribam usitatas habere consuevit differentias.

47Est et alius modus post haec ad inchoandum mediandum et finiendum, 'In exitu Israel de Aegypto' dumtaxat, a quo non legi ubi repertus, quem hic describam propter quosdam qui dubitant de quo tono sit, quamquam ubique non fuerit acceptus. 48Quem si nolis esse de hoc octavo tono, quia nullam haec talis modulatio cum subscriptis quatuor octavi toni differentiis habet affinitatem, dicatur etiam quod de nullo tono sit, quod est impossibile, quia nullam sortitur cum aliorum tonorum

47. de Aegypto om A
(legi) vel (ubi) H

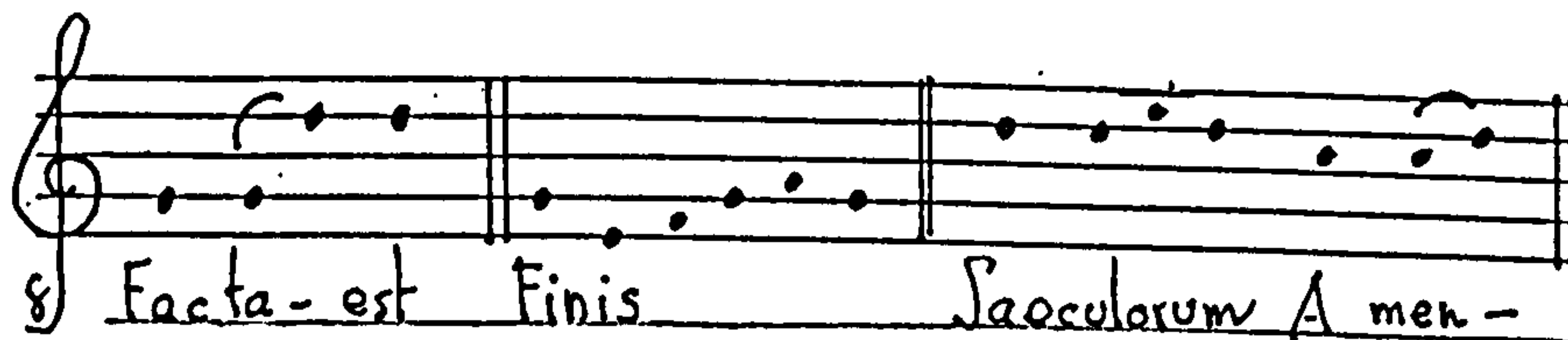
⁴³The third *differentia*:



⁴⁴The fourth *differentia*:



⁴⁵The fifth *differentia*:



⁴⁶Every antiphon which similarly ends on low G, and whose EUOUAE or 'Saeculorum' has its beginning on high c, is plagal and of the eighth tone, which normally has in use four *differentiae*, which I quote below.

⁴⁷Subsequent to these, there is also another method of beginning, of mediation and of ending, as the example 'In exitu Israel de Aegypto' demonstrates; I have not read of its source, but I shall describe it here because of certain people who are not sure to what tone it belongs, though it has not received general acceptance. ⁴⁸Now if you are unwilling to assign it to this eighth tone on the grounds that a melody such as this one has nothing in common with the four *differentiae* of the eighth tone quoted below, let it then be said that it belongs to no tone at all, which is impossible, because it has no affinity at all with the

differentiis conformitatem. ⁴⁹Verum quis hunc psallendi ritum fieri sub antiphona 'Nos qui vivimus' ignorat? ⁵⁰Quae quidem antiphona parvula, cum ad diatessaron usque non consurgat a fine suo, plagalis est ac per consequens de octavo tono.

⁵¹Quis autem nesciat eius esse toni psalmorum inchoationes mediationes ac terminationes cuius sunt antiphonae eorum? ⁵²Quod si te sollicitet inaudita post antiquos Ecclesiae doctores tantaque novitas, scito lector quoniam haec frequenter innovari possent a cantoribus et similia, si tamen placerent et reciperentur ab Ecclesia. ⁵³Nonne versus innovatos videmus non paucos in officiis propriis sanctorum et quarundam Ecclesiae festivitatum post responsoria videlicet matutinarum? ⁵⁴Num quid et hae quas describo singulorum tonorum differentiae sunt in multis ecclesiis, et si non in totum, aliquantulum tamen immutatae? ⁵⁵Potuit esse quidem ut hunc ritum decantandi psalmum illum aliquis homo dignitatis adinvenerit, pro cuius reverentia placuit multis ac divulgatus est non aliter quam de 'Gloria, Laus et Honor Tibi Sit, Rex Christe' legitur. ⁵⁶Unus enim imperator quendam episcopum in vinculis tenebat, quem cum in die Palmarum hanc laudem, quam fecerat ad honorem Christi, cantare sensisset ad fenestram carceris, multum sibi placuit, episcopoque statim in pristinum statum restituto, quod hic cantus divulgaretur per ecclesias voluit.

50. a fine *in marg* H
octo *pro* octavo
51. eorum *scripsi* earum HA
55. de cantandi A
hoc *pro* ac A
56. ad fenestram carceris *in marg* H
divulgaret A

differentiae of the other tones. ⁴⁹But is there anyone who is not aware that this way of singing occurs in the antiphon 'Nos qui vivimus'?⁴⁴ ⁵⁰This short antiphon, since it does not ascend to the diatessaron from its final, is plagal, and therefore of the eighth tone. ⁵¹Everyone should know that the beginnings, mediations and endings of the psalms belong to the same tone as their respective antiphons. ⁵²But if such innovation—unheard of since the teachers of the early Church—disturbs you, be aware dear reader, that these and similar innovations could often be introduced by singers as long as they were satisfactory and were acceptable by the Church. ⁵³Do we not see several new verses after the matins responsories in particular offices of the saints, and also for certain Church festival days? ⁵⁴Is it not the case that these *differentiae* in the individual tones which I describe have been changed in many churches to some extent, if not altogether? ⁵⁵It is possible that some important gentleman discovered this way of singing that psalm; out of respect for him, it became acceptable to many and was spread abroad, just as we read concerning 'Gloria, Laus et Honor Tibi Sit, Rex Christe'. ⁵⁶For one of the emperors was holding in custody a certain bishop; but when, on Palm Sunday, he had heard this bishop singing this song of praise in honour of Christ, close by the prison window, this gave the emperor great joy; he restored the bishop to his former status, and he desired that this chant be made known throughout the churches.⁴⁵

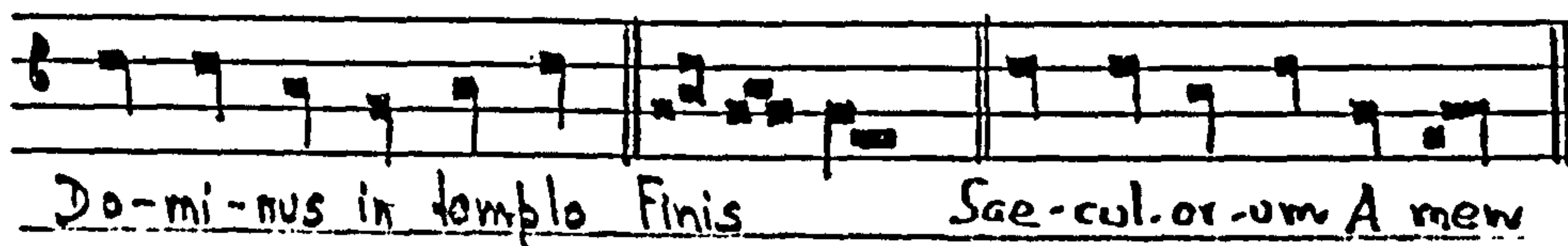
⁴⁴Burtius (*Florum libellus* p.103) assigns this *tonus peregrinus* to the eighth tone on the authority of Johannes: ...et hoc auctoritate Joahnnis Carthusiensis.*

⁴⁵ The legend says that Bishop Theodulph composed these verses whilst in prison in Angers. He was released on Easter Day by the emperor at that time, Louis the Pius, who reigned from 814 to 840.

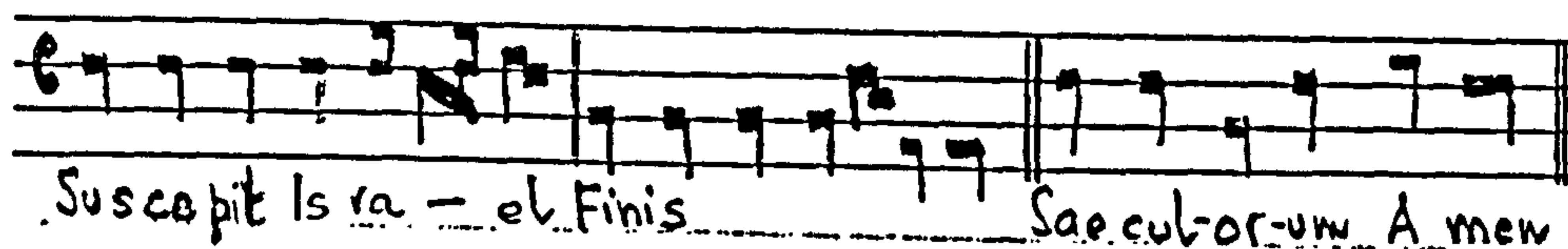
57 Prima sequitur octavi toni differentia:



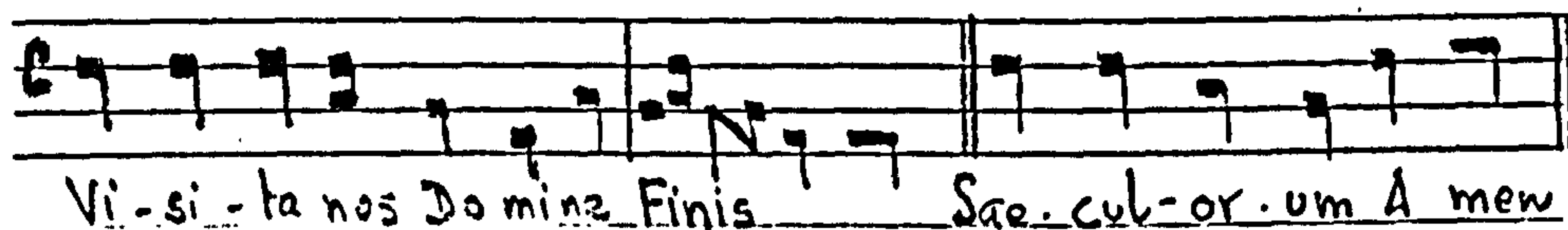
58 Secunda differentia.



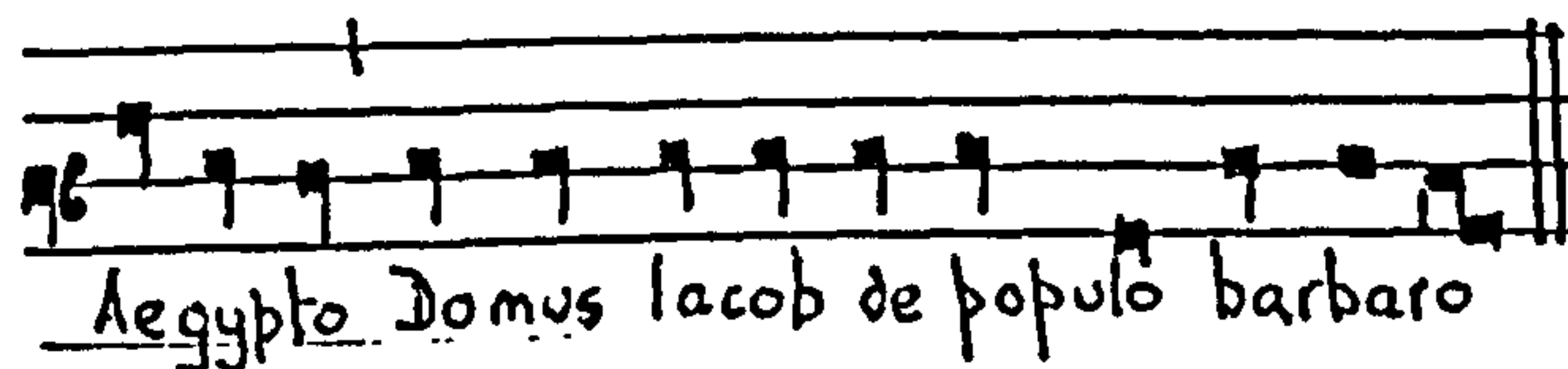
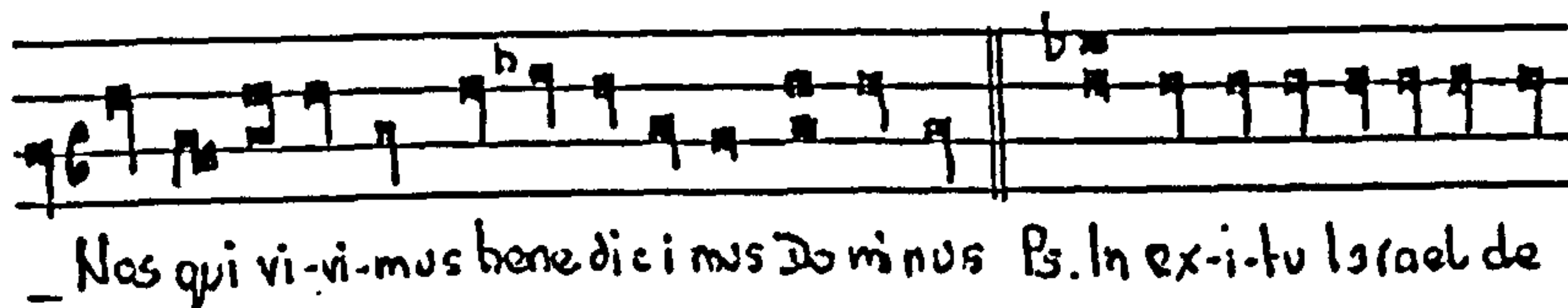
59 Tertia differentia:




60 Quarta differentia:



61 Antiphona:




57The first *differentia* of the eighth tone:




8] Par - vo - lus - Fi - li - us Finis Saeculorum Amen

58The second *differentia*



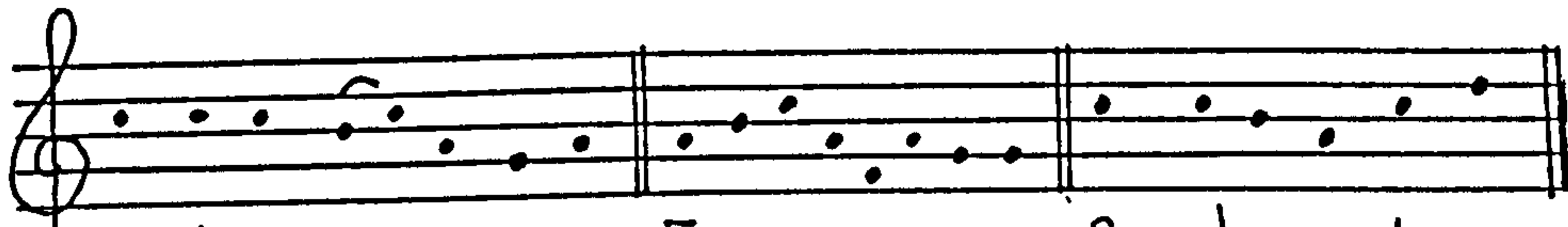
8] Dominus in templo Finis Saeculorum Amen -

59The third *differentia*:



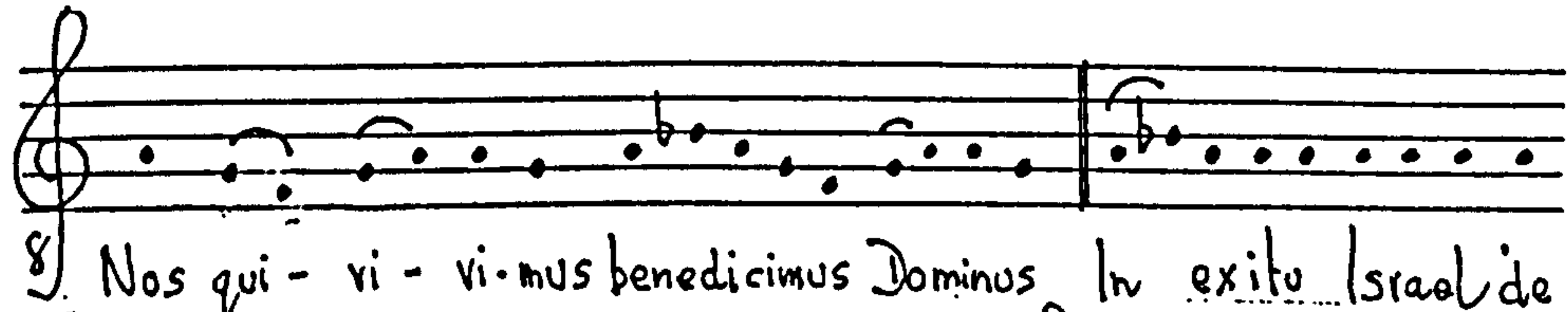
8] Suscepit Is - ra - - - el - Finis Saeculorum Amen

60The fourth *differentia*:



8] Vi - si - ta - nos Do - mine Finis Saeculorum Amen

61The Antiphon:



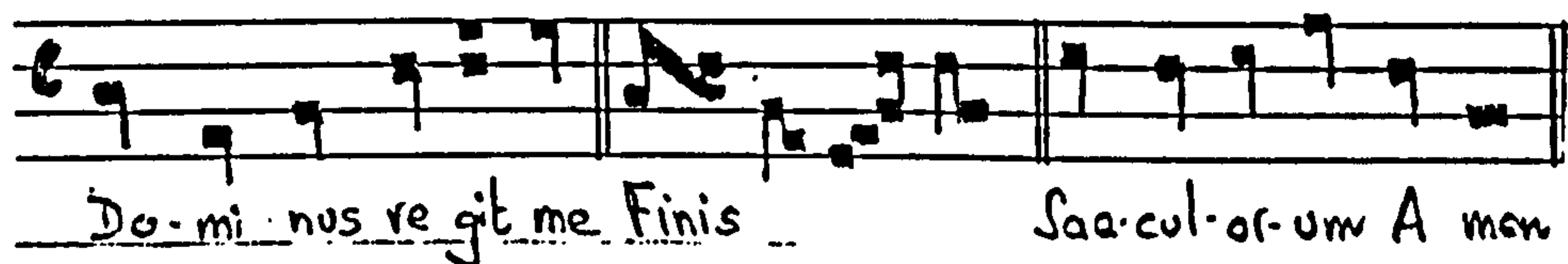
8] Nos qui - vi - vi - mus benedicimus Dominus In exitu Israel de Ps.
Aegypto Domus Iacob de populo barbar. o -

[X1]

¹De finitis in *a* nonnullis antiphonis secundum modernos irregularibus.

²Expletis tandem octavi toni differentiis, videndae sunt antiphonarum in *a* acuto finientium usitatae tres differentiae, quas quidam irregulares esse voluerunt, quod nusquam apud veteres Ecclesiae Christi musicos et eloquentiae multae viros invenimus. ³Ita namque regulariter in *a* finiuntur acuto, quintam diapason speciem ex diatessaron ac diapente, velut ante probatum est, componendo, sicut et tertius tonus in E gravi terminatur eandem diapason ex diapente et diatessaron concludendo. ⁴Nec est ullatenus in his antiphonis per b molle sine tritono cantandum, ut scilicet quarto tono fiant similes, quoniam hoc modo posset omnium tonorum immutari natura leviter, ac eorum species confundi.

⁵Prima sequitur antiphonarum in *a* terminantium differentia:



⁶Secunda differentia:



-
1. A 43r H 54r
 2. usitatae *in marg* H visitare *pro* usitatae A
 3. ex diapente *om* A
 4. his *om* A species eorum A

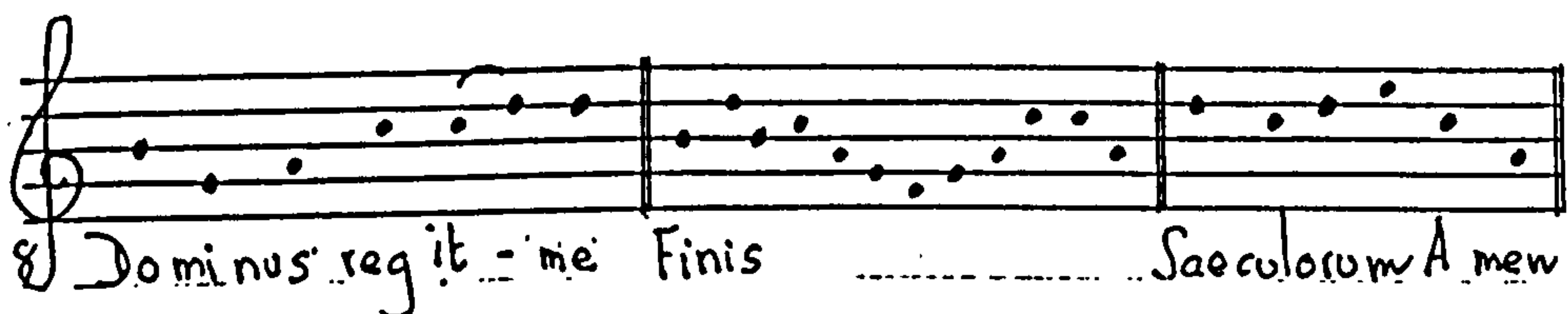
[XI]

¹Concerning certain antiphons which have their finals on *a*, which according to the moderns are irregular.

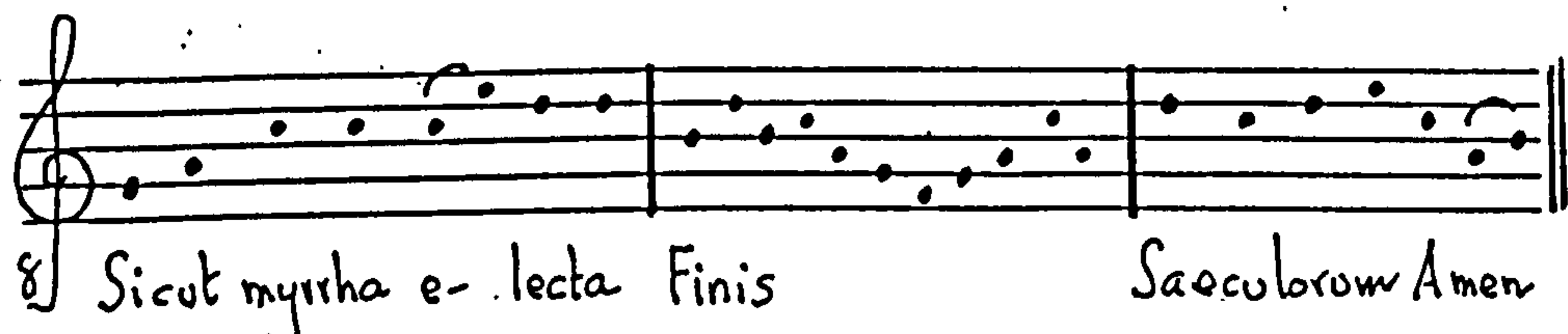
²Now that at last we have dealt with the *differentiae* of the eighth tone, we must look at the three *differentiae* of antiphons in use which have their final on high *a*. Some would wish to regard these as irregular, but nowhere have we found this to be the case in the eyes of the early musicians of Christ's Church, or of men of great eloquence.⁴⁶ ³They just as regularly end on high *a*—forming the fifth species of diapason from the diatessaron and the diapente as I have previously pointed out—just as the third tone ends on low E, forming the same diapason species out of the diapente and the diatessaron.

⁴Furthermore, in no way as far as these antiphons are concerned, should the tritone be excluded and a soft *b* sung, so that they become like the fourth tone, for in this way the nature of all the tones could be easily transformed, and their characteristic species obscured.

⁵Here follows the first *differentia* of the antiphons which end on *a*:

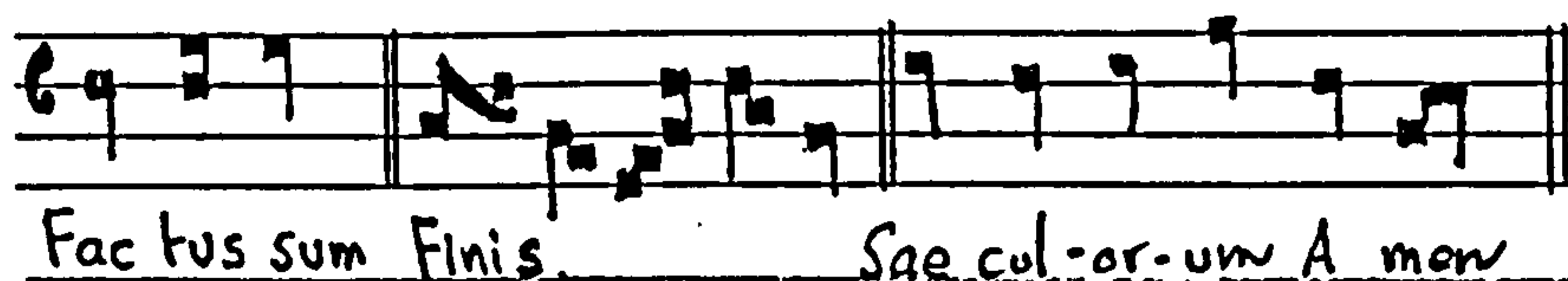


⁶The second *differentia*:



⁴⁶Concerning the regularity of these chants, see Introduction pp.49-55.

⁷Tertia differentia:



⁸Inchoationes psalmorum secuntur per singulos tonos ac mediationes.

⁹Visis itaque per singulos octo tonos atque cantus in *a* finitos ad terminandum iuxta morem Ecclesiae psalmos omnium antiphonarum differentiis, restat ut quo ritu mediari solent et inchoari videamus, praemissis videlicet his paucis rhythmis facilibus atque tinnulis, quo totum quod datum est in exemplum commendetur memoriae tenacius.

¹⁰Rhythmi faciles ad cuius toni sit antiphona discernendum:

¹¹Pri. per *D a* cognoscitur; se. per *D F* discernitur.
 Ter. per *E c*, Quar. per *E a*. Quin. per *F c*, Sex per *F a*.
 Sep. per *G d* videbitur, Oc. per *G c* similiter.
 Sed per *a d* si finiat, in *a* talis antiphona.

¹²Hi docent per singulos tonos omnes inchoare psalmos:

¹³Primus tonus inchoatur per *F G a* sed acutum,
 Et secundus per *C D F* graves quidem intonatur.
 Tertius et per *G a c* duabus iunctis notulis,
 Quartus autem per *a G a* sed inchoans in acutis.

⁷The third *differentia*:



⁸Here are listed the beginnings of the psalms according to each tone and mediation.

⁹Now that we have demonstrated, by means of the eight separate tones and the chants which end on *a*, the *differentiae* of all the antiphons which are designed to end the psalms according to the usage of the Church, it remains for us to see what form the mediations and the openings take, having clearly set out these few elementary ringing rhymes, so that everything I have given by way of example may be the more firmly committed to memory.

¹⁰Rhythms which facilitate the recognition of the appropriate tone for an antiphon:

¹¹The first tone antiphons are recognized by the range D *a*,
 The second by the range DF.
 The third manifests itself in the range E *c*, the fourth through E *a*.
 The fifth through F *c*, the sixth through F *a*.
 The seventh tone is seen in the pitches G *d*, and the eighth
 likewise through G and *c*.
 If an antiphon is characterized by the range of pitches *a* to *d*,
 it is in *a*.

¹²The following demonstrate the openings of all the psalms according to each tone:

¹³The first tone begins with FG and high *a*.
 The second is intoned on low CDF.
 The third begins on G *a c* with two notes joined.
 The fourth begins *a* G *a*, but in the high register.

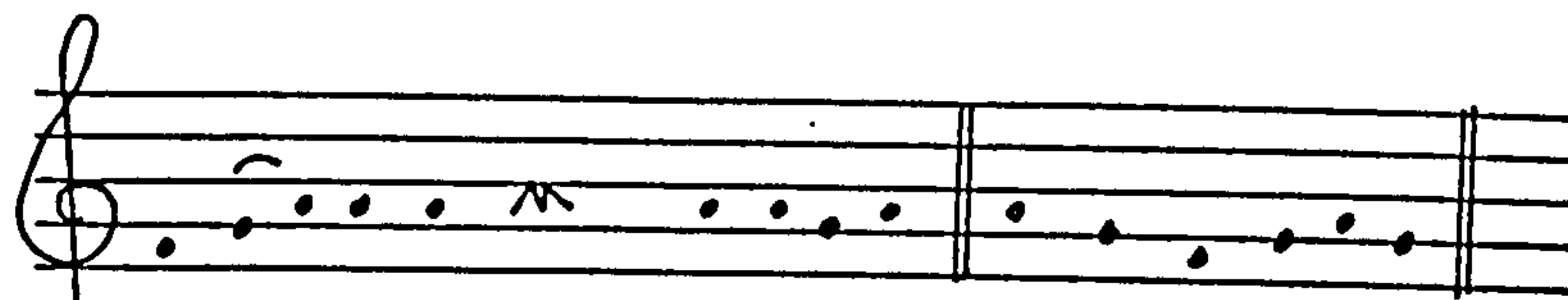
The fifth with the pitches *F a c*, but with the first pitch in the low register.

The sixth, like the first, has its third pitch in the high register.

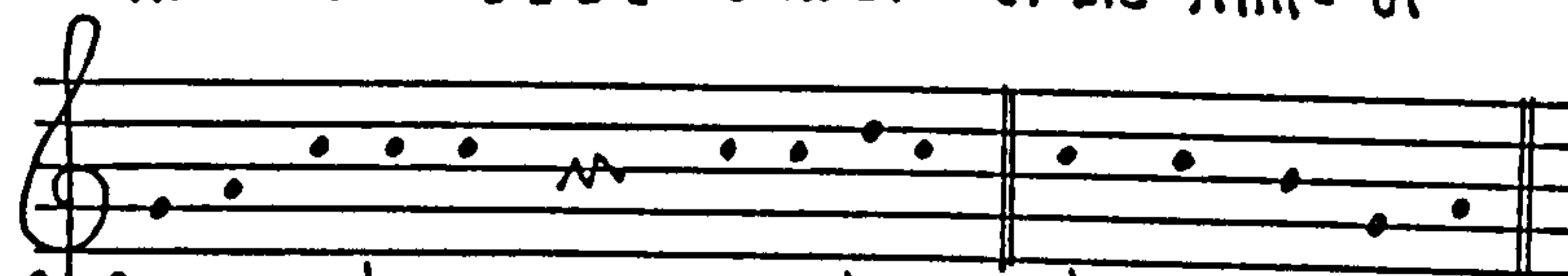
The seventh tone begins with high *c* \flat *c*,

Whilst the eighth opens with *G a c* but with divided pitches.

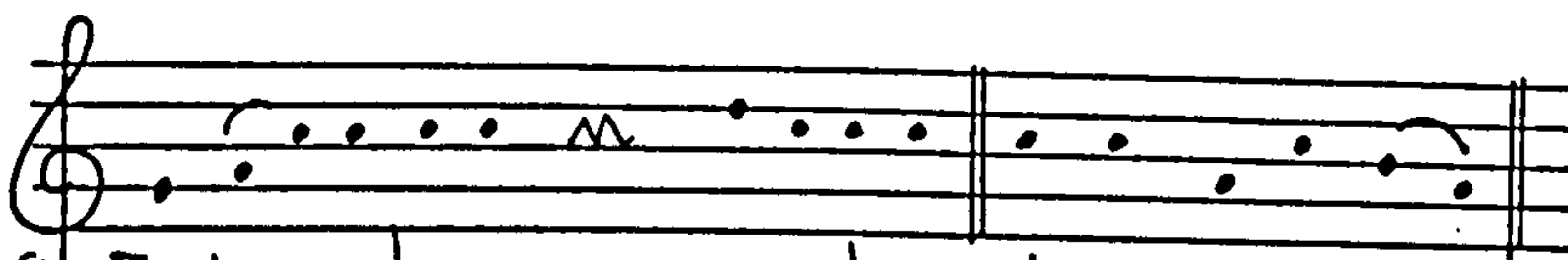
The antiphons which end on *a* begin with *d c d* in the high register.⁴⁷



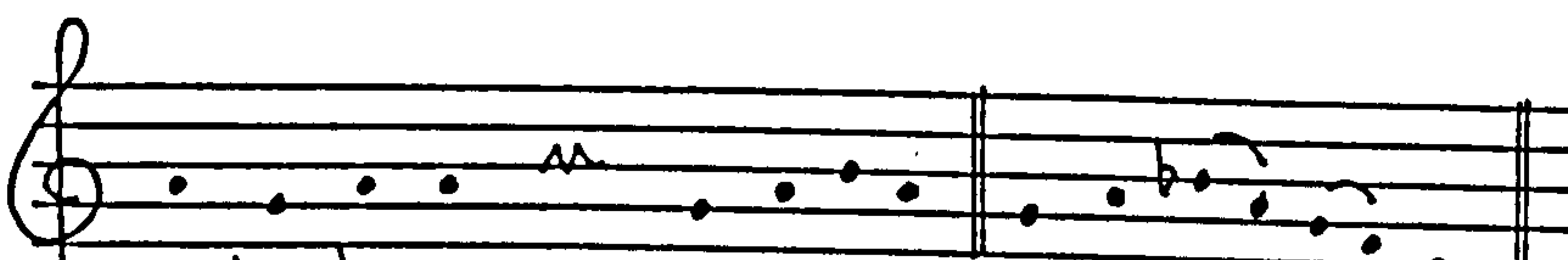
8) Primus tonus mediator et sic finit-ur



8) Secundus tonus mediator et sic finit-ur



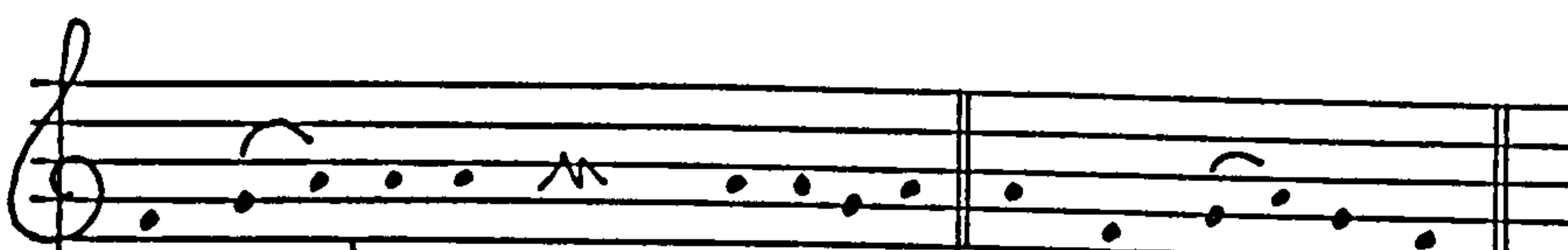
8) Terti-us tonus mediator et sic finit-ur-



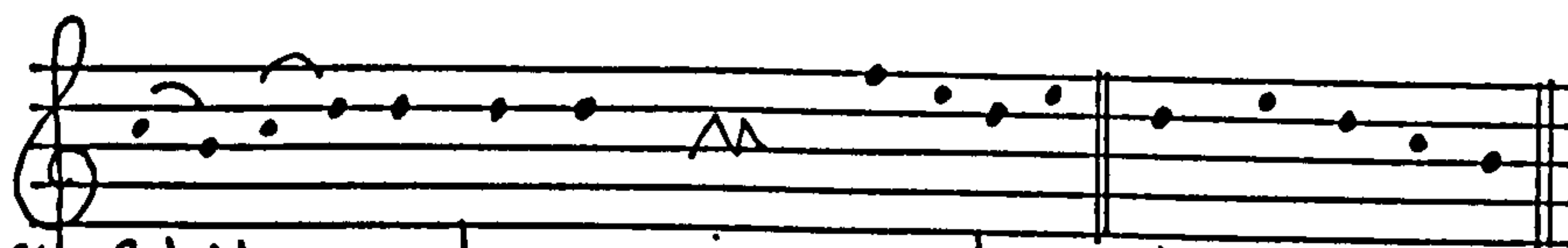
8) Quartus tonus mediator et sic fi-ni-tur



8) Quintus tonus mediator et sic fin-i-tur



8) Sextus-tonus mediator et sic fi-ni-tur



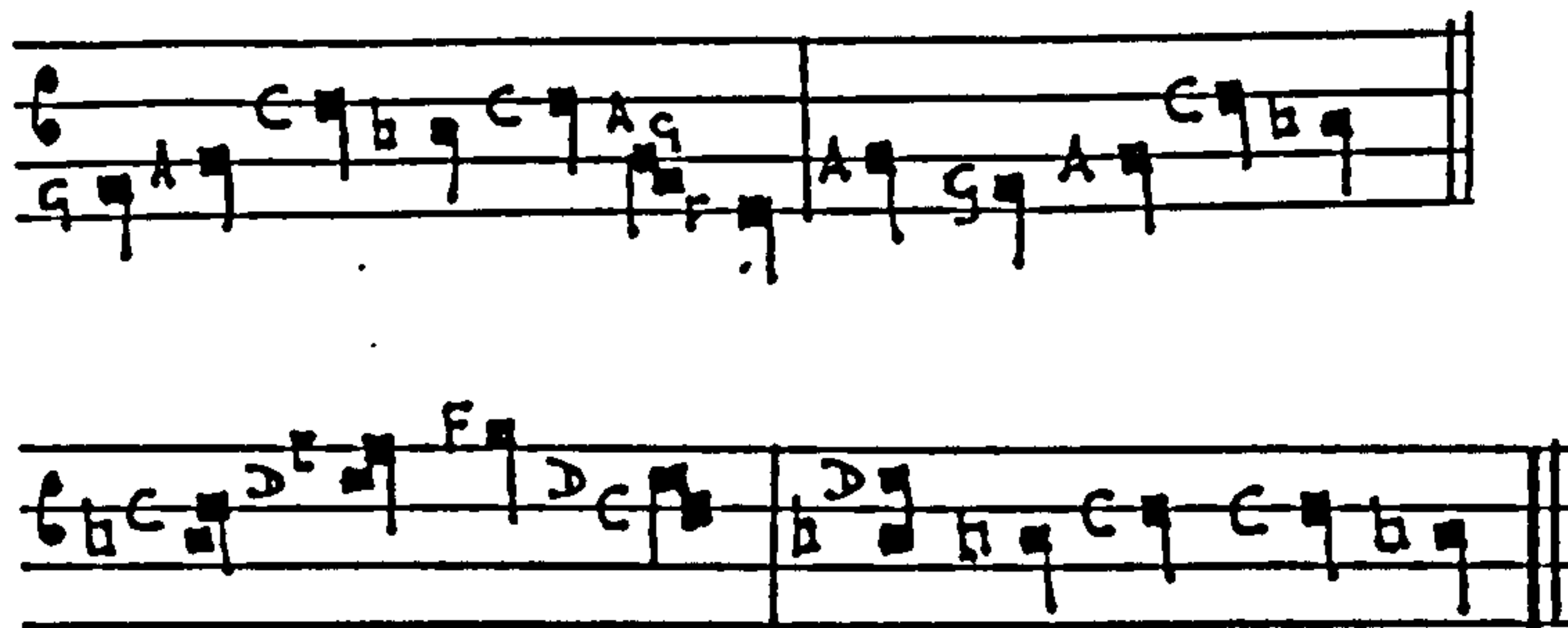
8) Sep-ti-mus tonus mediator et sic finitur



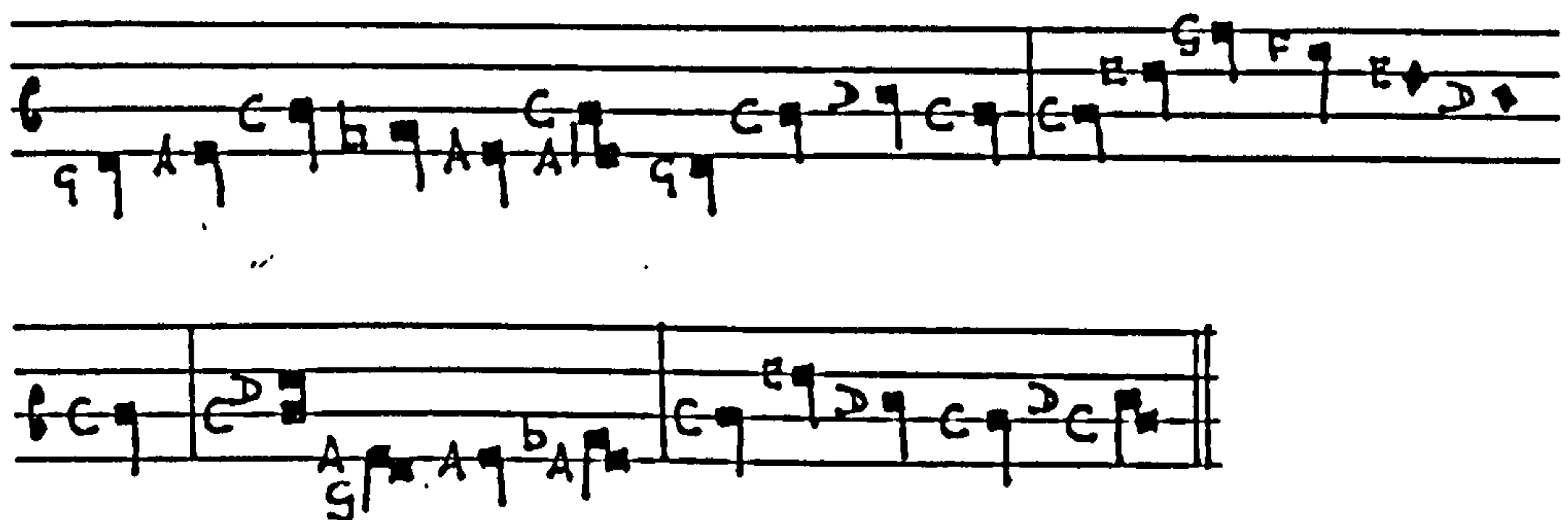
8) Octavus tonus mediator et sic finitur

⁴⁷The musical examples are in Jacques *Speculum* 6 pp. 223, 258 and 271.

¹⁴Haec est formula cantuum in \flat quadro finitorum, per quos sexta diapason turpi subdito tritono falsum diapente sonat:



¹⁵Haec est formula cantuum in C finem habentium, quos septima diapason elevat ad diapente subdando diatessaron:



14Here is the formula for those melodies which have their final on the square \flat ; through these, the sixth diapason species sounds, consisting of the false diapente with the dreadful tritone placed underneath:



15Here is the formula for those melodies which have their final on C, which the seventh diapason species lifts to the diapente, with the diatessaron underneath.



[XII]

¹Cantus seculares et lascivos, quos moderni discantus appellant figuratos ac mensuratos, non esse regulis suprascriptis subiectos.

²Hoc demum expleto secundae partis huius opusculi primo libro, necnon quam faciliter modulari planum cantum docere iudicare seu discernere per litteras et notas quadras valeamus ostenso, non in totum a proposito quidem arbitror alienum, si cantus laicorum, quos discantus nominant figuratos aut mensuratos, non his subiacere legibus ecclesiasticis nec ab illis discerni posse demonstrem. ³Quippe qui nullis in locis propriis inchoare seu finire coguntur, nec per certas ac determinatas diatessaron et diapente incedere, quin potius ad libitum et arbitrium eius qui componit illos et excogitat diriguntur.

⁴Quis oro scire non debeat nullam prorsus ante nostri Salvatoris adventum de plano cantu factam esse mentionem, huncque nobis Christianis angelicum ac tantae gravitatis canendi ritum a Spiritu Sancto postea magis quam ab hominibus traditum?

⁵Totus namque mundus, ut ita loquar, non sic ante Christum graviter simpliciter et plane cantabat, sed cantus etiam parvos mediocres et magnos, duplices atque triplices, aut forsitan quadruplices, sicut et nunc lascivos ac mensuratos excogitabant, et haec scientia penes maxime Graecos philosophos famosa nimis erat.

-
1. A 44v H 55v
(faciliter) modulari (modulari) *dele* A
(non) in (his) *add* A
et *om* A
 4. nullam non debeat A
 5. ita *om* A
quoque *pro* atque H
forsitan *in marg* H

[XII]

¹Secular and wanton melodies which the moderns call figured and measured discants. The above rules do not apply to them.

²Now that finally I have completed the first book of the second part of this little treatise, and shown how easy it is for us to sing plainsong, to teach it, to make judgments concerning it, and to identify it by means of the letters and the square notation, I think it not totally foreign to my topic if I deal with secular songs, which are called figured or measured discants, and which are not subject to these ecclesiastical regulations; neither can they be distinguished by these. ³These melodies then are not forced to begin or end in particular places, or to proceed by the fixed diatessaron and diapente. Rather are they controlled by the wishes and the decisions of the one who composes and invents them.

⁴Who, pray, can be unaware of the fact that absolutely no mention of plainsong was ever made before the birth of Our Saviour, and that this heavenly way of singing—and of such dignity—was afterwards presented to us as Christians, not so much by man, as by the Holy Spirit. ⁵For men throughout the world—if I may speak in this way—before the birth of Christ, used not to sing so seriously, so simply, and so plainly. Rather, they then, as they do now, composed wanton and measured melodies of limited, of medium, and of extended range, in two, three, or even four parts. This skill achieved excessive notoriety most of all at the hands of the Greek philosophers.

⁶Parvos autem dico discantus quos in diapason constitutionibus cadere videres, mediocres eos qui diapason diatessaron, paulo plus paulo minus, occupant, magnos vero qui totam bisdiapason implere videntur.

⁷Inquiratur ergo de vanis huiusmodi cantibus, quorum formam viri nequaquam ecclesiastici, sed gentiles invenere primum et antiquissimi philosophi, non cuius toni sint, quoniam tunc necdum erant isti tropi, non si proti deuteri triti seu tetrardi, cum nec in D gravi nec in E nec in F nec in G teneantur finiri, non si plagales vel authentici, cum legibus authenticorum et plagalium sint minime subiecti. ⁸Quin potius quaeratur in quibus constitutionibus atque diapason speciebus sint extructi, et siquidem inter A grave et *a* acutum et *a* superacutum tota resonet eorum harmonia, quovis in loco finierint, in prima bisdiapason constitutione constructi sunt, ut est haec quam in verbis et notis excogitavi cantio devota, quamque multis in exemplum esse volui cantoribus. ⁹Nam si bene discantum observes tenorem et contratenorem, non est vox inter tres illas quam non tetigerim ex industria, qui si resonuerint inter *b* quadris quae secunda diapason sunt species, erunt de secunda bisdiapason constitutione; sin autem inter *C c c*, quae tertiae species sunt, de tertia, sed si inter *D d d*, quae quartae diapason sunt species, de quarta sint, sicque de relictis.

-
7. tunc *om* A
 si *pro* sic A
 nec dum *pro* necdum A
 extruti *pro* extructi A
 8. ut haec est quam A
 noctis *pro* notis A
 (in) exemplum (exemplum) *dele* A
 ex se *pro* esse A
 9. in ter A
 diapason in *marg* H
 sint *supra lin* H

⁶Those discants I call 'limited' are those which you see to fall within the diapason systems; those of medium range confine themselves to the diapason diatessaron, more or less; those of extended range appear to occupy the entire bisdiapason.

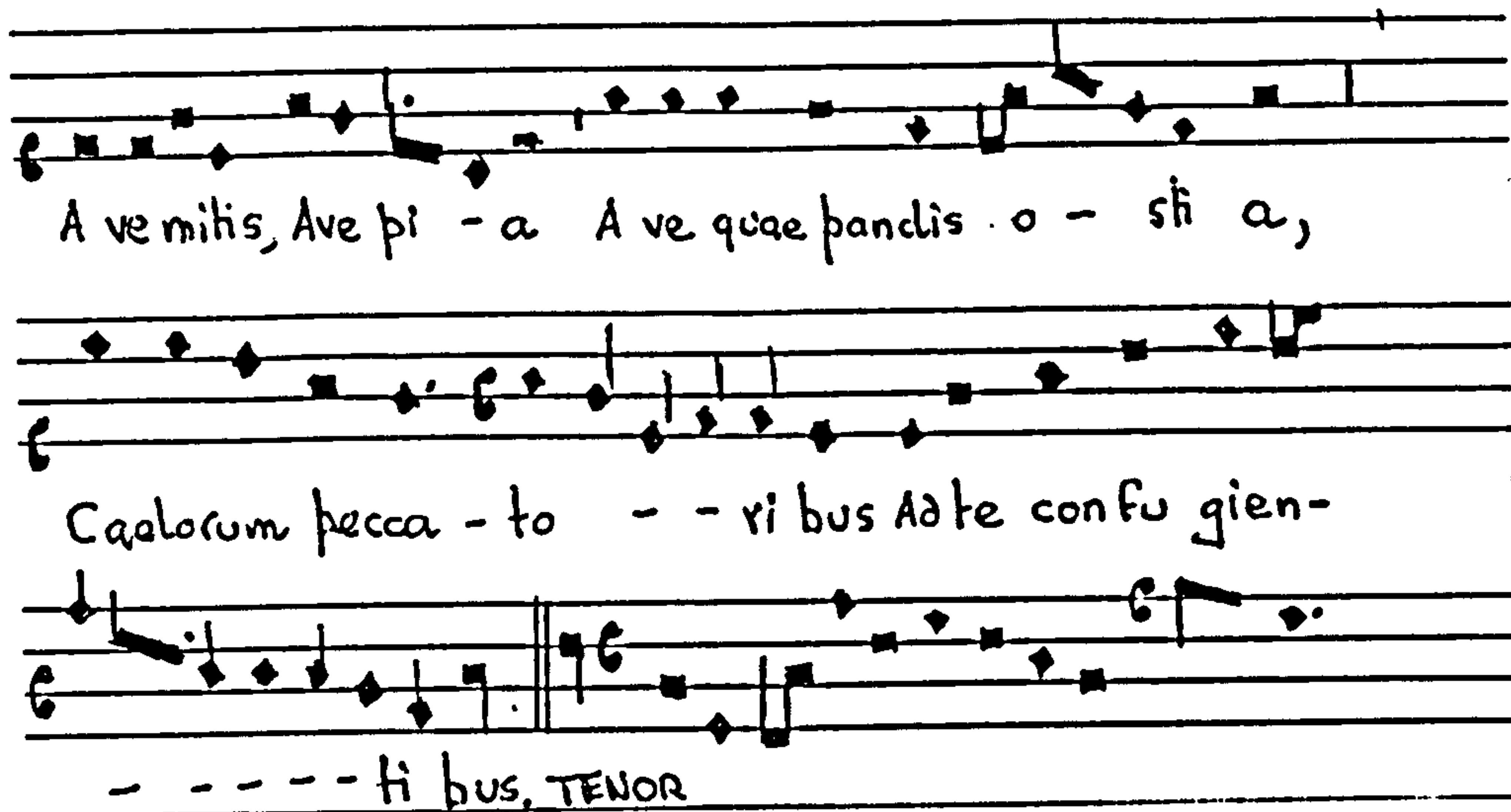
⁷As regards the vain melodies of this type, whose structure was first invented not at all by men of the Church, but by the pagan philosophers of antiquity, it is pointless to ask to which tone each belongs, since those tropes did not exist at that time; it is also futile to try to establish their connection with the protus, deuterus, tritus and tetrardus modes, since they are not required to end on low DEF or G; do not ask whether they are plagal or authentic, since they are not in the least subject to the rules which govern authentic and plagal modes.

⁸Rather, we should ask within which systems and species of diapason they are composed, and, if indeed their entire melodic range patterns sound within low A, high *a* and very high *a*; wherever they finish, they are made up according to the first bisdiapason system, as is the following devotional piece, the words and music of which I myself have composed, and which I wished to serve as an example for many singers. ⁹For if you examine carefully the discant, the tenor and the countertenor, you will see that there is not a single note between the three parts which I have placed without due thought. If these different parts operate between the square *b*'s which form the second diapason species, then they will belong to the second bisdiapason system. If their notes sound between C *c* and ^c*c* which are the third diapason species, then they will belong to the third bisdiapason; if again they fall between the notes D *d* ^d*d*, which are the fourth diapason species, they will belong to the fourth bisdiapason system, and so on.

¹⁰Et quis hoc modo parvos etiam cantus mensuratos ac mediocres in qua cadant constitutione praesto non iudicet? ¹¹Haec autem dicta sint, non ut mihi cura sit de nostri temporis in cantibus lascivia, quam prorsus amore Christi detestatur anima mea, sed ne, quemadmodum ignari de Boetio dicunt 'non tractavit practicam eo quod se non in suis phantasiis occupat', ita de me dicant 'nostras figuras et lascivas mensuras nescivit'.

10. hoc *om* A
 candant *pro* cadant A
 11. prorsus *in marg* H

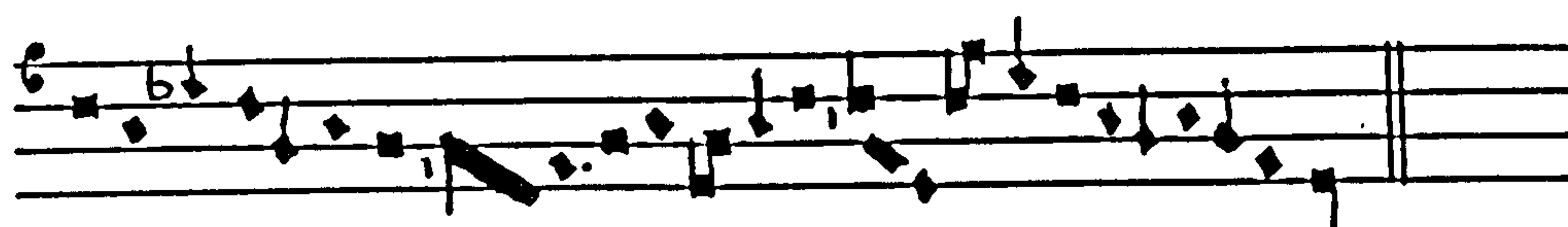
¹⁰Clearly there can be no-one who cannot decide into which of these systems even the short and medium-range measured melodies fall. ¹¹Let me say this, not to show any interest in the wanton nature of contemporary melody, which my soul, through love of Christ, utterly denounces, but that men should not say of me: 'He was ignorant of our melodic patterns and wanton rhythms', in the same way as they, in their ignorance, say of Boethius: 'He dealt not with actual practice because he busied himself with speculations not his own'.



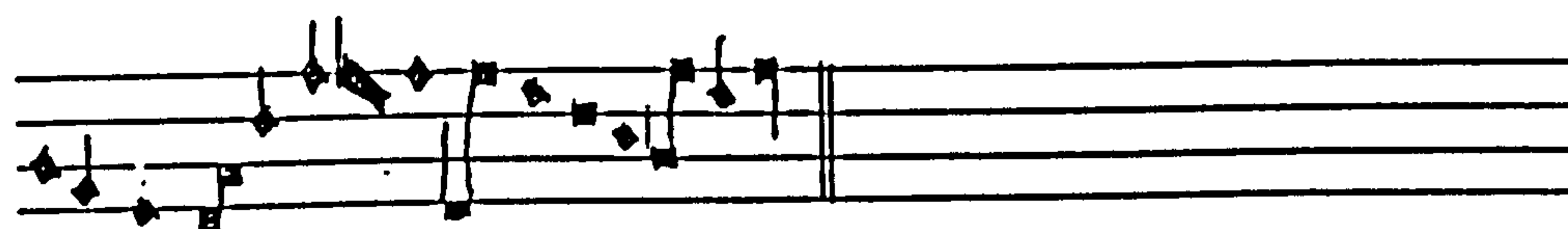
A ve mi his, Ave pi - a A ve quae pandis o - sti a,

Cae lo rum pec ca - to - - ri bus Ad te con fu gien -

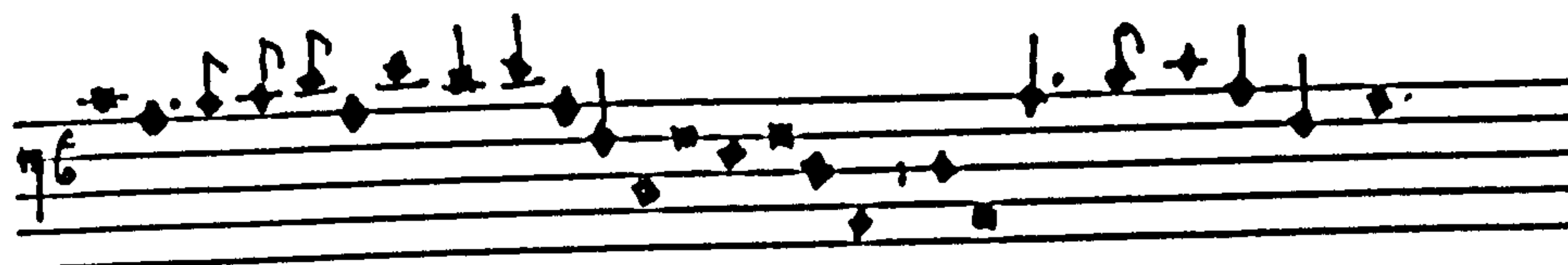
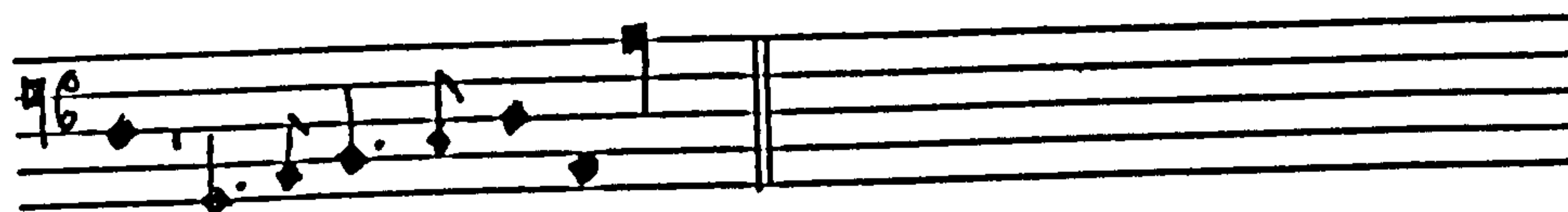
- - - - ti bus, TENOR




CONTRATENOR (II)




CONTRATENOR (A)

A- ve mit - is a - ve pi - - a

TENOR

CONTRATENOR

A- ve quae pand - is - - - sti - a

Cael-or um pec - ca - to - ri bus Ad te con

fug - gi - en - - - hi bus.

¹²Ave mitis, ave pia,
Ave quae pandis ostia,
Caelorum peccatoribus
Ad te confugientibus.

¹³O quam dulcis es Domina,
Spargis omnibus bracchia,
Parvulis et magnatibus,
Egenis atque divitibus.

¹⁴Per te mitescunt omnia
Caelestia terrestria;
Exultat terra laudibus
Caelumque totis viribus.

¹⁵Nulla tibi par femina,
Virgo quamquam castissima,
Gignens Deum hominibus,
Salutem cunctis gentibus.

¹²Hail gentle, hail holy one,
Hail to you who throw open
The doors of heaven to sinners
Who seek refuge in you.

¹³Oh how dear to us you are O Lady,
You who fling wide your loving arms to all,
Both small and great,
Both poor and rich.⁴⁸

¹⁴Through you all things in heaven
And earth grow gentle;
Earth rejoices in praise, and heaven too
With all their might.

¹⁵No woman is your equal,
Though a virgin of the purest nature,
You gave birth to God for the sake of mankind,
God who is the salvation of all people.

⁴⁸Cf *Ps* 49, v 3: Humiles natu aeque ac procures, Pari modo dives et pauper.

16O res admirandissima,
Virgo parit purissima,
Plena quidem pudoribus
Prae cunctis mulieribus.

17Virgo mater piissima,
Nos protege, nos adiuva,
Dona tuis fidelibus
Laetari cum caelestibus.

18EXPLICIT LIBER PRIMUS SECUNDAE PARTIS DE RITUS CANENDI PER LITTERAS.

16What a wondrous event,
That a most pure virgin should bring forth a child,
Endowed with modest grace
Beyond all women.

17Most loving Virgin Mother,
Protect us, help us;
Grant to your faithful people
That they may rejoice with the heavenly host.*

18THE END OF THE FIRST BOOK OF THE SECOND PART OF THE METHOD OF
SINGING BY MEANS OF THE LETTERS.

¹INCIPIIT LIBER SECUNDUS DE SEX UT RE MI FA SOL LA SYLLABIS.

[I]

²Omnem ob sex syllabas et quinque vel sex modici decoris figuras vilipensam a modernis cantoribus musicae virtutem.

³Post renovatum a me superius tam optimum quem nostri patres a principio coluere per litteras canendi ritum, mirari non desino tantam cantorum, non nunc tantummodo, sed iam a non paucis retroactis temporibus, uti vana quorundam scripta testantur, intellectus inopiam. ⁴Qui circa sex utpote syllabas et quinque leves incauti figuras *ut re mi fa sol la* videlicet, ac duplicem longam ⁷ longam ⁷ brevem ⁷ semibreve ⁷ minimam ⁷ et si qua similia sint, ita seducti sunt ut ibi summum eius scientiae, quam inter mathematicas artes musicam appellant, putent reperire bonum, ac si quis avellanam exterius diutissime rodat dentibusque premat, nunquam tamen ad id industriae pervenire valet ut sapidum qui latet intus, rupto duro cortice, nucleum gustet.

⁵An nescitis, o cantores, si tamen vos magis delectat operam dare virtuti quam vanitati, nescitis, inquam, quoniam Philomela tam egregie canit, prorsus ignorans quid sit *ut re mi fa sol la*? ⁶Sed et canens dulciter aera scindit ac tempus metitur, nesciens longam neque brevem aut vestras mensuras omnis avicula.

-
1. A 29v H 57r
 2. et *om* A
 3. iam *pro* tam A
 4. incauti *scripsi* incausti HA
ita seducti sunt *in marg* H
ubi *pro* ibi A
diutissime exterius A
 5. Philomela *scripsi* Philomena HA

¹THE SECOND BOOK, WHICH DEALS WITH THE SIX SYLLABLES, UT RE MI FA SOL LA.

[I]

²Every good which music possesses is thought nothing of by singers of today because of the six syllables and the five or six note shapes of modest appeal.

³Now that I have previously in this treatise resurrected the superb style of singing which our ancestors observed from the very beginning by the use of letters, I do not cease to wonder at the lack of awareness in singers, not only of today but from several ages back, at least as the inane writings of certain people attest.¹ ⁴They are so thoughtlessly taken up with these six syllables and the five unreliable note-shapes, namely *ut re mi fa sol la* and the *duplex longa* 𐀀, the *longa* 𐀁, the *brevis* 𐀂, the *semibrevis* 𐀃, the *minima* 𐀄 and the like, that they think that in these they find the ultimate good of that subject which, amongst the mathematical disciplines, they call music.² It is as if someone were to gnaw at the outside of a hazel nut for a very long time, and bite at it with his teeth, but is never able to reach that stage in his efforts when he breaks the hard shell and tastes the delicious kernel which is hidden inside.

⁵Singers! Are you not aware, provided that it pleases you to pay attention to virtue rather than to vanity, I say, are you not aware that the nightingale sings so exceptionally well, though clearly ignorant of the nature of *ut re mi fa sol la*?

⁶But every little bird rends the air with its own sweet song, and observes its own time values, without knowing anything about the *longa* and the *brevis*, or about your own rhythmic patterns.

¹Cf *Quattuor princ.* in CS 4 p. 22, where the author describes the monochord in terms of solmization syllables, and deals extensively with mutations (*Ibid.* p. 222).

²A possible source for these note values is Prosdocimus' first treatise, *Expositiones*.

⁷Numquid et asina rudens aerem findit rituque suo vociferans tam audaciter metitur tempus quam et alacriter? ⁸Nec desistit voces asininas sua quadam respirando mensura satis decenter organizzare donec ipsa suam melodiam completam noverit esse.

⁹In quo quidem et is qui primus per illas sex syllabas cecinit mecum sentire videtur, sic dicens in his tinnulis rhythmis Guido monachus:

¹⁰ <i>Musicorum et cantorum</i>	<i>Grandis est distantia;</i>
<i>Isti dicunt, illi sciunt</i>	<i>Quae componit musica;</i>
<i>Nam qui facit quod non sapit</i>	<i>Diffinitur bestia.</i>
<i>Caeterum tonantis vocis</i>	<i>Si laudent acumina</i>
<i>Superabit Philomela</i>	<i>Vel vocalis asina.</i>
<i>Ob quod eis esse suum</i>	<i>Tollit dialectica.</i>

¹¹Haec etenim in hac arte vilia sunt, neque rationi quae cuncta discutit praeponenda, cantor namque nihil amplius habens quam *ut re mi fa sol la*, longas et breves, tertias et quartas, quintas et sextas aut huiusmodi rusticis ac idiotis communia, cui debet assimilari nisi tibicinibus?

7. aera *pro* aerem A
interrog. om A
8. complectam *pro* completam A
10. Philomela *scripsi* Philomena HA
11. quae om A
habens amplius A
et om A

⁷And does not the she-ass rend the air as she brays, and, giving voice in her own way, observe her own rhythms as daringly as she does eagerly? ⁸Nor does she cease to compose her asinine melody by breathing according to her own rhythm perfectly properly, until she knows that her music is complete.

⁹In this regard, he who first sang by means of these six syllables seems to share my sentiments, since he, brother Guido I mean, speaks as follows in rhymes which delight the ear:

¹⁰Between the singer and musician
Wide is the distance and condition;
The one repeats, the other knows
The sounds which harmony compose.
And he who acts without a plan
May be defined more beast than man.
At shrillness if he only aim,
The nightingale his strains can shame;
And still more loud and deep the lay
Which bulls can roar and asses bray.
Dame Logic, such ineptness seeing,
Removes from them their very being.³

¹¹In the practice of this art, these things are of little value, and should not be preferred to Reason, the discerner of all things. For the singer who has little else to show but *ut re mi fa sol la*, the *longae* and the *breves*, the thirds and the fourths, the fifths and the sixths, and suchlike things, shared by peasants and uneducated people, to whom should he be likened except to shawm players?⁴

³The rhymes are from Guido *Aliae reg.* in GS 2 p. 25, and see also *Quattuor princ.* in CS 4 p. 203. The verse translation appears in Burney *Gen.Hist.* Vol. 1 p. 464.

⁴Tinctoris describes the *tibia* as a shawm, and see his *De inventione et usu musice* p. 3: *Tibia instrumentum est duo principalia tenens formanina: unum valde angustum; per quod (canna de se sonora quam vulgus anciam vocat infixā) sonus flatu hominis creatus immititur.*

¹²From the twenty-sixth book of *Historiale Speculum*: who invented *ut re mi fa sol la*, and at what stage he placed everything on the left hand:

¹³Conrad was raised to the throne in the year of Our Lord 1025, that is, the year of the world 1088,⁵ and reigned for fifteen years. ¹⁴In Italy at that time Guido of Arezzo was famous, and enjoyed a great reputation amongst musicians. ¹⁵He is to be preferred to the philosophers for the following reason—that even boys find it easier to learn unfamiliar melodies by means of his rule rather than by the master's voice, or by using some instrument or other, provided that the six letters or syllables are placed in proper order of pitch next to the six individual pitches, the only ones which music regularly admits, and that these pitches are displayed on the joints of the left hand. Then it is that the risings and the lowerings of those six pitches within a melodic shape throughout the entire diapason impress themselves upon one's eyes and ears.⁶

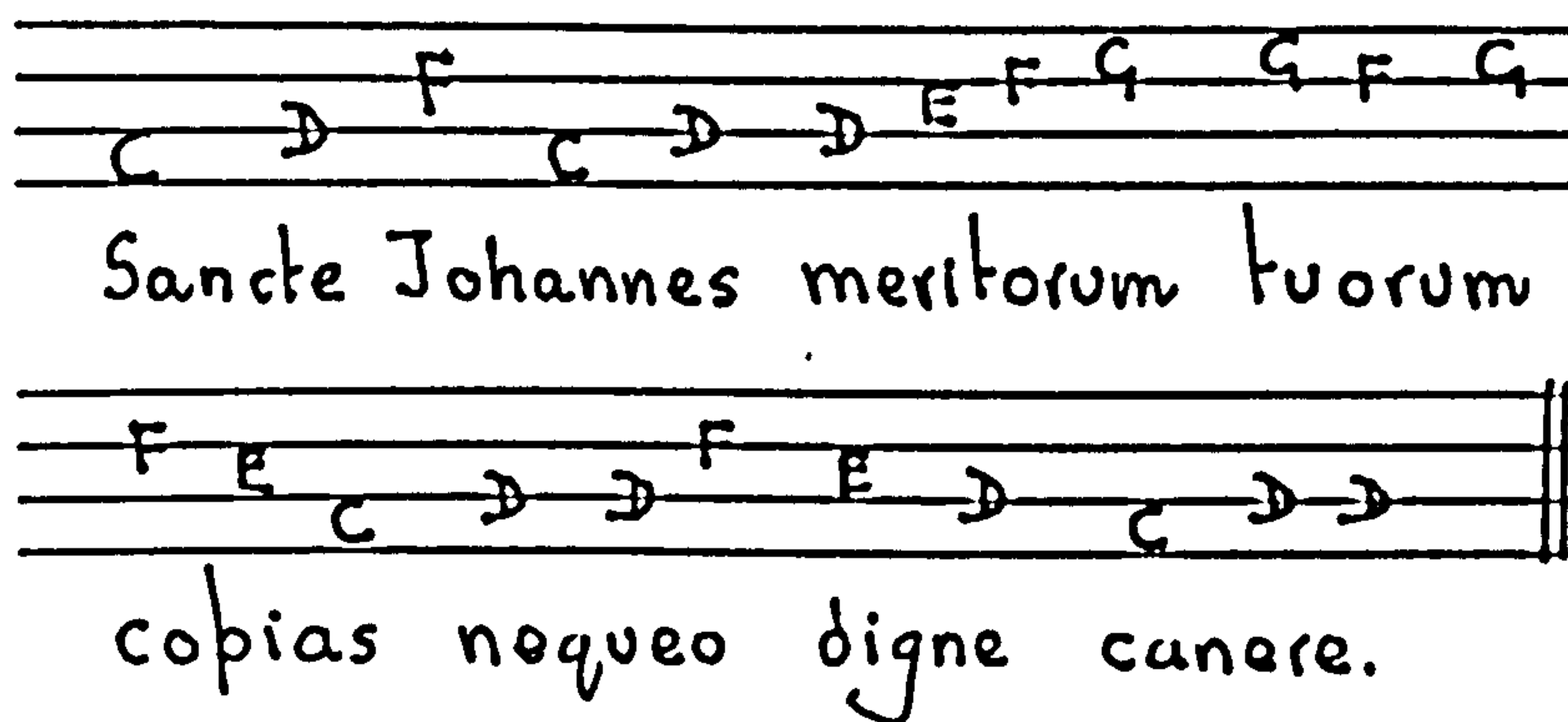
¹⁶My dearest friends! The fact that these humble remarks I am jotting down might seem to you to be unprecedented does not worry me, for, during the reign of Pius 11, I discovered a very old book, in which several Catholic musicians of Antiquity dealt with many topics concerned with plainsong in the most wonderful way. ¹⁷One of these authors spoke in dialogue style, and introduced the teacher questioning the pupil about various topics concerned with sounds and pitches, and taught him to sing, without any lines, the antiphon written at the end by means of the following notation, or something like it, which the whole Church employed at that time:⁷

⁵See J.J.Bond *Handbook* pp. 269ff.

⁶Vincent *Speculum quadruplex* 4 p. 1006b. Thus the excerpt is from book 25.

⁷Ref. *Mus. ench.*, and 'Ego sum via' appears on p. 5.

¹⁸Guido vero natione Tuscus et, ut audisti ante paululum, Aretinus, quodque totum excellit pius ordinis Sancti Benedicti, qui tunc sanctitate multa pollebat monachus, et ipse quidem, in illo de quo loquor libello, mira de tono, semitonio, ditono, semiditono, diatessaron, diapente, ac de dimensione monochordi tractabat, asserens utique iam relictis illis notulis suo tempore totam Ecclesiam uti quindecim alphabeti nostri litteris, septem utpote gravibus et septem acutis, nam quicquid habetur ultra tertium *a* superfluum sensatis musicis reputatum est, et Γ gamma, quod est G Graecum, sub G gravi per diapason fuit a modernis cantoribus illo in tempore additum. ¹⁹Cuius rei volo testis sit haec, quam sic sine lineis et spatiis illic repperi symphonia, in eo scilicet quod praefatus monachus de musica composuit opusculo, quodque *Micrologus* appellatur, id est brevis sermo.



-
18. audisti *scripsi* audis HA
in illo tempore A
19. haec *om* A
appellat *pro* appellatur A

¹⁸Guido was Tuscan born and, as you heard a little previously, a native of Arezzo; he was, above all, a devoted monk of the Order of Saint Benedict, which flourished at that time with abundant sanctity. In that treatise of which speak, he dealt wonderfully with the tone, the semitone, the ditone, the semiditone, the diatessaron, the diapente and the measurements of the monochord. In the treatise he states quite definitely that the entire Church had abandoned the use of this kind of notation, and was in his time using the fifteen letters of our own alphabet, namely, seven low and seven high—for whatever occurs beyond the third *a* was considered superfluous by discerning musicians—also there was Γ , the letter Gamma, which is the Greek G, which was an diapason below low G, and which was added by contemporary singers at that time. ¹⁹To this fact I would like the following melody to bear witness—a melody which I discovered written like this, but without the lines and spaces, in the treatise about music written by the monk mentioned above, called the *Micrologus*, which means 'a brief discourse'.⁸

⁸'Sancte Johannes': in *Micrologus* 17,18 (p. 189).

²⁰Cernens autem Guido praefatus nimiam tunc temporis in Ecclesia Dei tam canendo quam docendo planum cantum differentiam, nimiumque discendo laborem ita quod tot essent varii cantus plani codices episcopatus, variaeque ad docendum inventiones, nec poterant, ut in ea fatetur quam scribit ad Michaellem Pomposiae monachum epistola, vel imperfectam saltem in decem annis acquirere modulandi scientiam, primo totum quo nunc utimur his lineis ac debitis spatiis distinxit antiphonarium, quod Papa Johannes, qui tunc erat, probare voluit, irritandoque quicquid alii cantores adinvenerant, id laudavit, tenuit et confirmavit. ²¹Qui nos ad tantam provocare cupiens canendi, docendi seu addiscendi facilitatem, sic in paucis his rhythmis tinnulis ait Guido:

<i>²²Solis notare litteris</i>	<i>Optimum probavimus</i>
<i>Quibus ad discendum cantum</i>	<i>Nihil est facilius,</i>
<i>Si frequentate fuerint</i>	<i>Saltem tribus mensibus.</i>

²³Videns ergo quam facile sit canere per septem has litteras ABCDEFG totiens quotiens opus fuerit replicatas, suis necnon debitis lineis atque spatiis ordinate deputatas, adiecit et sex illas ex hymno Beati Johannis Baptistae, succisis sex particularum primae partis capitibus, propter infantulos fabricare syllabas, quibus nempe tonos magis faciliter aut elevarent aut deponerent, ac semitonia, velut quodam adminiculanti baculo suffulti.

20. praefactus *pro* praefatus A
 itaque *pro* ita quod A
 imperfectum *pro* imperfectam A
 23. canere *om* A
 has septem litteras A
 adminiculandi *pro* adminiculanti A

²⁰The aforesaid Guido then, realized that at that particular time, great differences existed in the Church in the singing and the teaching of plainsong, and that learning it was a very great burden. This was because there were so many different books of plainsong within the diocese,⁹ and so many varied methods of teaching it. And indeed there were those who, as he points out in the letter which he wrote to brother Michael of Pomposa, even in ten years had not been able to acquire even an imperfect knowledge of singing.¹⁰ First of all, he embellished the whole of the Antiphonary which we now use with these lines and corresponding spaces. Pope John XIX, who was Pope at that time, was willing to give his approval to this, and, invalidating anything that other singers had invented, he praised, supported, and established this. ²¹Guido then, in his desire to encourage us to gain such a proficiency in singing, teaching, and learning plainsong, speaks as follows in these few poetic and ringing lines:

²²If men for threemonth themselves apply,
Then for to sing no easier way can I
Commend than these letters solely
For to learn thereby.¹¹

²³He realized therefore how easy it is to sing by using these seven letters ABC DEFG—repeated as often as was necessary—and assigned to their own proper lines and spaces in order. Furthermore, he went on to construct a row of six syllables by isolating the first syllables of the first six phrases of the Hymn to Saint John the Baptist. These could be used by even the youngest children, with the result that they raised and lowered the pitch of their voices through the progressions of tones and semitones with greater ease. It was as if they were strengthened by the support of a kind of walking-stick.

⁹Cf Guido *Aliae reg.* in GS 2.p. 35: sed tam multa sunt antiphonaria quam multi sunt per singulas ecclesias magistri.

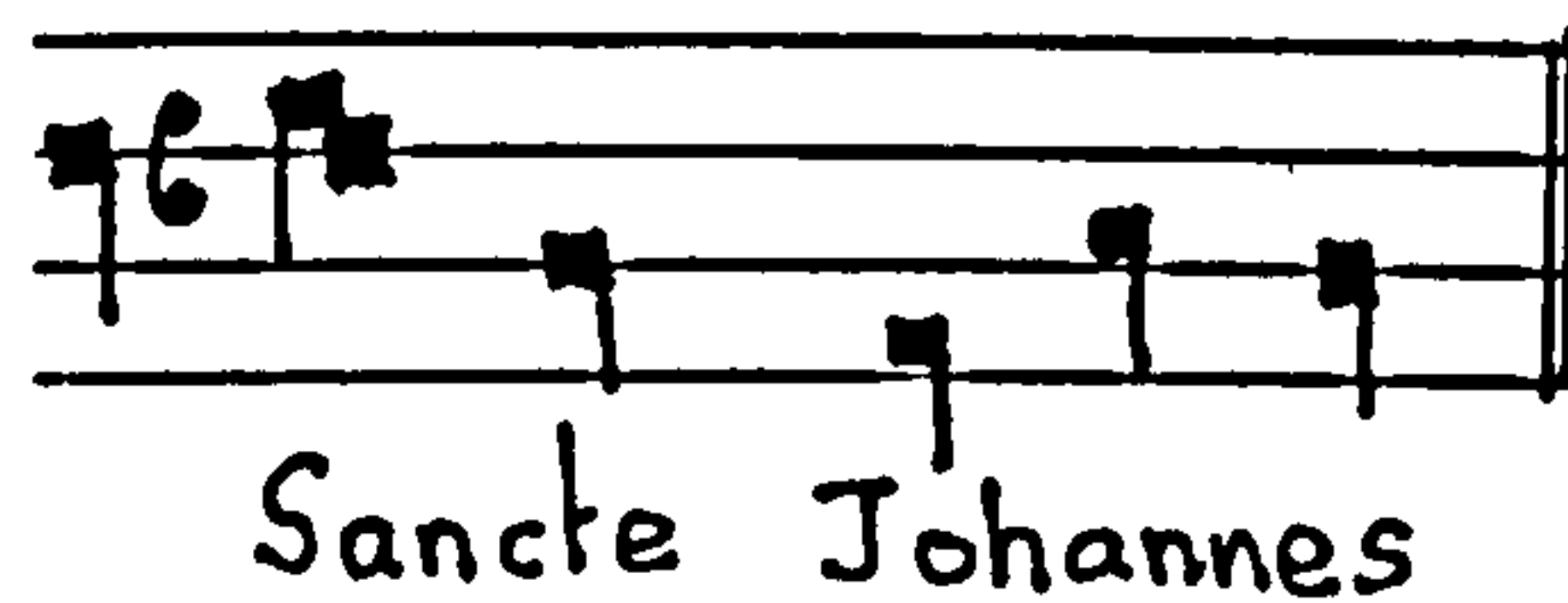
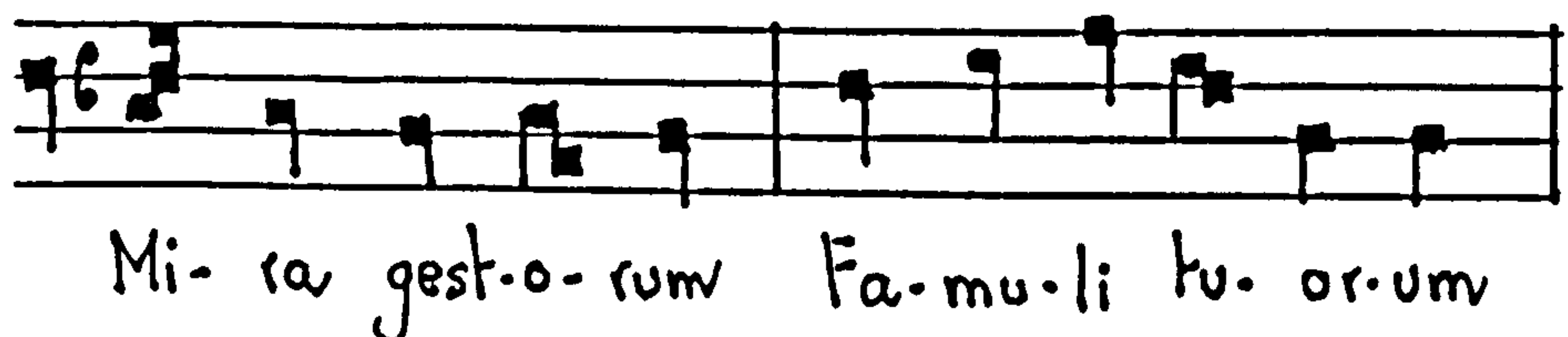
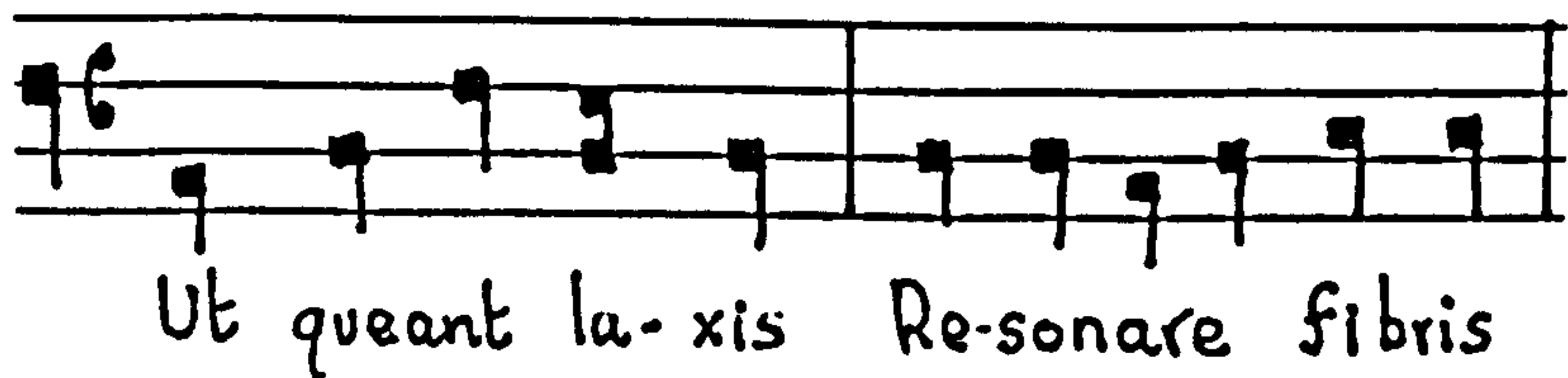
¹⁰Guido *Epistola* in GS 2 p. 44.*

¹¹Cf above *Pars secunda* 1.1.6.

²⁴Nam et ad eundem Pomposiae monachum et in eadem epistola sic ait Guido:

²⁵*Sit inquit haec symphonia qua ego docendis pueris in primis atque ultimis utor.*

²⁶Sequitur primus versus hymni Sancti Johannis, cui Guido talem cum lineis et notulis apposuit cantum, in quo sit *ut re mi fa sol la* satis ad propositum.



²⁴To the same monk at Pomposa, and in the same letter, Guido speaks as follows: ²⁵'Let this' he says 'be the melody which I use for teaching boys from the very beginning to the end'.¹²

²⁶There follows the first verse of the Hymn to St John, to which Guido added with lines and with notation the kind of melody within which *ut re mi fa sol* and *la* are contained satisfactorily for our purpose.¹³

The image displays four staves of musical notation, each with a C-clef and a key signature of one flat (B-flat). The notation is a form of square notation on a four-line staff. The lyrics are written below the notes. The first three staves are divided into two measures each by a vertical bar line. The fourth staff is a single measure. The lyrics are: Ut queant la - xis Re-son-a-re fibris, Mi - - ra gesto - rum Fa-mu-li tu - or-um, Sol - - ve pol-lu-ti La-bi - i re a - tum, and Sanc-te Jo-hannes.

Ut queant la - xis Re-son-a-re fibris

Mi - - ra gesto - rum Fa-mu-li tu - or-um

Sol - - ve pol-lu-ti La-bi - i re a - tum

Sanc-te Jo-hannes

¹²Guido *Epistola* in GS 2.p. 45.

¹³*Ibid.*

[II]

¹Omne quidem in *ut re mi fa sol la* superfluum quod non sit aut in allegata illa Guidonis epistola, aut in hac symphonia saltem expressum.

²Cernis lector vario ritu cecinisse veteres, et ad ultimum modernos *ut re mi fa sol la* non ea quidem puritate qua confectum est usque nunc exercuisse. ³Quaere, quaeso, praefatam Guidonis epistolam in qua se nobis illas fabricasse sex syllabas insinuat, et si tot ibi *fa ut, ut fa, sol ut, ut sol*, aut huiusmodi simile cum naturis illis mollibus et duris nimia verbositate quidem egentibus inveneris, volo me per omnia fuisse mentitum. ⁴Quae proculdubio tanto debent aestimari superflua quanto verum obfuscando sensus discentium tedio nimis opprimunt. ⁵Quot quaeso viri tonsurati Deum alacriter in ecclesiis laudarent, ardentique desiderio cantum illum 'Eis qui Dei sunt' suavissimum, neque tamen lascivum quem nobis tradidere sancti patienter addiscerent, nisi tot ambages verborum, tot varii naturarum, quadrorum et mollium ordines, totve non iam vocum sed syllabarum superfluae mutationes rudium animos ac ingenia fatigando debilitarent? ⁶Quidam rem attentare conantes fabulas illas memoriae mandant, sed antequam ad id pervenerint quod discere cupiunt, tanta garrulitate verborum attediati, iam expensis aliquando pecuniis, totum in medio relinquunt.

-
- | | |
|----|---|
| 1. | A 47v H 57r
ut <i>pro</i> aut A |
| 2. | pravitare A
est <i>om</i> A
nunc <i>om</i> A |
| 3. | praefactam A
illa <i>pro</i> illas A
esse <i>pro</i> fuisse A |
| 4. | exstimare A |
| 5. | tunsurati A |

[II]

¹Everything in *ut re mi fa sol la* is superfluous which is not mentioned in Guido's letter, mentioned previously, or expressed in this melody.

²You see, dear reader, that the ancients sang in a different way, and that the moderns have, at the last, made use of *ut re mi fa sol la*, not however with the simplicity with which it was created. ³And so consult, I beg you, Guido's letter which I have mentioned above,¹⁴ in which he indicates that he invented the six syllables for our benefit: if there you find so many instances of *fa ut, ut fa, sol ut, ut sol*, or other similar examples, together with those natural, soft and hard (hexachords) in need of over-lengthy verbal explanations, I am prepared to be found false in all respects. ⁴These things without a doubt should be regarded as unnecessary to the extent that, by obscuring the truth, they confuse the senses of the pupils by their excessive tedium. ⁵How many tonsured men would praise God with zeal in their churches, and with a burning desire patiently learn that chant 'Eis qui Dei sunt',¹⁵ beautiful as it is and not wanton, and a chant handed down to us by the saints, if so many syllabic ambiguities, so many different placements of the natural, hard and soft (hexachords),¹⁶ and the unnecessary mutations, not of pitches but of syllables, had not weakened the spirits of simple men by their tedium and dulled their faculties? ⁶In their efforts to get to grips with this, some commit these stories to memory, but before they achieve what they set out to learn, here they become bored with this babble of words, and abandon the project in its entirety, in mid-stream, having eventually exhausted their money.

¹⁴See above *Pars secunda* 2.1.24.

¹⁵But the chant cannot be traced.*

¹⁶'...tot varii.....ordines': this is a reference to the *coniunctae*, and see Introduction pp. 74-75. Ramos da Pareia shares Johannes' distaste for mutations, and see his *Musica practica* p.44; Bene quidem dixit de his mutationibus ipse frater Johannes Carthusinus: non dico vocis in vocem mutationem, sed ab ambage in ambagem variationem. 'Natura' denotes the 'property of the natural hexachord', and see Tinctoris *Term. mus. diff.* pp. 46-47: Natura est proprietas per quam in omni loco cuius clavis est C, ut cantatur, et ex illo caeterae voces deducuntur.

⁷Alii vero philateria illa, ut vulgo loquar, non parvo labore crebri discunt, sed nil praeter *fa ut, ut fa, sol ut, ut sol*, et his similia totis diebus in ore volventes, affecti quoque taedio, tandem a docente cantore discedunt sicut ante nescii. ⁸Aliqui tamen et illam mente tenus habent superfluam sex syllabarum verbositatem, et elevandi vocem atque deprimendi per illas non parvam practicam, verum ultra procedere volentes, dum verba sacra cum illis syllabis in quo totus fructus est accordare volunt, parum aut nihil in tota vita sua proficiunt. ⁹Quare? Quoniam absque dubio tonum et semitonium, quae communes omnium melodiarum mensurae sunt, ac per consequens huius artis origo medium et finis, funditus ignorant. ¹⁰Operta namque veritas ab illis sex syllabis et suffocata nequaquam in caecis ignorantia mentibus illucescere valet. ¹¹Docete, quaeso, pauperes clericos, o cantores, proferre tonum ac semitonium sub debitis suis litteris absque tot verborum ambagibus, et sufficit eis. ¹²Nam testor ego Deum et sanctos angelos, ac eos qui me docere vident cotidie planum cantum, quod abiectis illis sex omnino syllabis, tot quadris tot naturis, totque mutationum illarum frivolis, in una vel circiter hora discunt a me fratres mei Cartusienses quindecim philosophorum discernere voces, in quibus dumtaxat omne planum a principio nostri sancti constituere cantum. ¹³Nec mora tonum proferrunt ubique locis debitis ac semitonium, plus in mense quonammodo proficientes quam cum illis iterum philateriis plerique discant per annum integrum.

-
7. vulgare *pro* vulgo A
 dicunt A
 propter *pro* praeter A
 8. mente tenus *scripsi* mentetenus HA
 autem *pro* aut A
 9. quae *om* A
 (communes) sunt *dele* H
 11. docere *in marg* H.
 12. discernere *in marg* H

⁷And others, with no mean effort, learn these texts¹⁷—if I may speak in vulgar fashion—in large numbers, and rolling nothing but *fa ut, ut fa, sol ut* and *ut sol* about in their mouths for days on end, they too are overcome by fatigue, and finally leave the singer who is teaching them as ignorant as they were previously. ⁸Some however get as far as remembering the excessive verbiage of the six syllables, and acquire no little practical skill in raising and lowering the pitch of their voices through these. But when they want to make further progress, wishing to harmonise the sacred words with these syllables, which is the object of the whole exercise, they achieve nothing or little for the rest of their lives. ⁹Why is this? It is because they are clearly ignorant of the tone and semitone, which are the common measures of all melodies, and consequently the beginning, the middle and the end of this art form. ¹⁰For if the truth is suppressed and stifled on account of these six syllables, in no way can it be brought to light in minds which are blinded by ignorance. ¹¹I beg you, singers, teach the poor clerics to produce the tone and the semitone under their proper letters, without all this vague terminology, and it will suffice them. ¹²For I testify before God, his holy angels, and those who see me daily teaching plainsong that, having rejected totally the six syllables, and all the hard and the natural [hexachords],¹⁸ and the stupidities which the mutations involve, my brother Carthusians learn through me in about a single hour to recognize the fifteen pitches of the ancient philosophers; from the beginning it is within these at most that our own holy men constructed every plainsong melody. ¹³And they promptly produce the tone and the semitone in all their rightful places: somehow they achieve more in a single month than most people manage to learn in a whole year with the aid of those texts.

¹⁷A 'phylactery' was a small leather box, used by Jews, which contained four texts of Scripture. 'Philateria' is a medieval Latin form, and cf below, sentence 13.

¹⁸See above *Pars secunda* 2.2.5.

¹⁴Et nihilominus in momento canunt si velint per illas sex syllabas, non quod sibi reputent illud esse necessarium, sed ut probent per effectum, quoniam qui noverit tonos et semitonia discernere, non solum per litteras aut per syllabas, sed et per omne quod voluerit potest de facili cantare. ¹⁵Verum haec de superflua verbositate quadrorum, naturarum et mutationum sufficiant, cum iam ad veram brevem atque perfacilem [practicam] canendi per *ut re mi fa sol la* sit utique procedendum.

-
14. immomento A
aut per *in marg* H
et³ *om* A
15. superflua A

¹⁴Nevertheless, they do, if they wish, sing in a moment by means of the six syllables, not because they think it necessary to do so, but in order to test it by actual usage, since the person who knows how to recognise the tones and the semitones can easily sing not only by the letters or the syllables, but also by any other way he wishes. ¹⁵However, as far as the superfluous terms attached to the hard and natural (hexachords) and the mutations are concerned, let what I have said suffice, since now I surely must go on to deal with the proper, quick, and easy method of singing by means of *ut re mi fa sol la*.

[III]

¹Quare Guido sex syllabas elegerit ad cantandum, nec plus nec minus, et quare litteras ABCDEFG dictis syllabis miscuerit; quid sit *ut*, quid *re* et caetera, curve Γ gamma Graecum ante nostrum A locare voluerit, et in manu sinistra totum sic ordinare.

²Primum ergo quaerendum est cur Guido, novam illam introducere volens canendi formam, sex solas syllabas elegerit, et non potius quindecim iuxta numerum ordinis philosophorum, aut tot quot voces communis sui temporis usus habebat, seu quatuor dumtaxat aut plus aut minus. ³Ad quod respondendum breviter quoniam musicus erat et non cantor purus, non nesciens omne quod canitur quatuor tantum concludi vocibus ac duobus cum semitonio minori tonis, quod totum aut prima consonantia diatessaron ab antiquis philosophis appellatur aut tetrachordum, hoc est quatuor chordarum. ⁴Quid enim ultra primam diatessaron agis quod non sit unum et idem? ⁵Nam cum a Γ gamma Graeco sint quatuor voces in C grave, duoque toni cum semitonio quod diatessaron reddit aut primum tetrachordum, ultra procedens hoc habebis ab ipso gravi C in F grave vel ab F gravi in b rotundum, et sic usque in infinitum. ⁶Attamen quia diatessaron illa prima consonantiarum modo post duos tonos minus habet semitonium ut est Γ gamma vel G, quod est unum, et ΓABC, vel etiam CDEF, tam grave quam acutum aut superacutum, modo inter duos tonos ut est ABCD vel DEFG, tam sursum quam deorsum,

-
- | | |
|----|--|
| 1. | A 47v H 59v |
| 2. | illam novam A
sollas A |
| 3. | id <i>pro</i> hoc A
cordatum A |
| 4. | enim <i>om</i> A |
| 5. | redit A |
| 6. | superactum <i>pro</i> superacutum A
tam <i>om</i> A |

[III]

¹Why Guido chose six syllables for the purposes of singing, neither more nor less. Also, why he mixed the letters ABCDEFG with the said syllables. The nature of *ut*, *re* and so on. Why he wanted to place the Greek Γ before our own A, and arrange it all like this on the left hand.

²First of all, we should ask why Guido, in his wish to introduce the new way of singing, chose only six syllables, rather than fifteen to fit the number contained in the arrangement of the philosophers, or as many as the pitches which were in common use at his time, or again, just four, or more, or less.

³To this question, we should briefly reply that he was a musician, and not merely a singer,¹⁹ and was well aware of the fact that everything which is sung is confined to only four pitches, that is, two whole tones and a minor semitone. By the ancient philosophers this whole combination is called either the first consonance of the diatessaron, or the tetrachord, which means 'of four pitches'.

⁴For what do you do beyond the first diatessaron which is not exactly the same? ⁵For since between Γ —the Greek Gamma—and low C, there are four pitches and two whole tones and a semitone which produce a diatessaron, or the first tetrachord, if you proceed further you will encounter the very same thing from low C to low F, or from low F to the round b, and so on to infinity.

⁶However, the diatessaron, which is the prime consonance, sometimes has the minor semitone placed after the two whole tones, as in the progression ΓABC , where Γ and G are the same thing, or the pitches CDEF, occurring in the low, high or very high register. At other times, the semitone occurs between the two whole tones as in the progression ABCD, or the progression DEFG, either in ascent or descent.

¹⁹*De inst. mus.* 1,34 (223-235) draws this distinction, and see Introduction p. 7.

modo ante duos tonos quod quidem BCDE monstrat et EFGa comprobat, nimirum necesse fuit Guidonem, cuius propositum erat quam breviter totum exprimere cantum, has sex nec plus nec minus aut alias huiusmodi totidem fabricare syllabas.

⁷Quis enim nesciat per *ba be bi bo bu bam* id fieri potuisse vel per aliud simile?

⁸Quicquid etenim canendo proferre velis observa tonum ac semitonium, et optimum erit. ⁹Volens autem ille ritum, quem tunc modulando voces communis usus habebat, in manu sinistra tamquam in portatili tabula sicuti sunt ordinare, nec ignorans quoniam etsi quatuor primae sibi succedentes litterae, sicut ibi monstratum est, unam de tribus diatessaron speciebus generent, quinta nihilominus et sexta subsequens littera duas alias eiusdem primae consonantiae gignunt differentias, ultra quod nihil habes, si rem aequa lance penses, in vocibus dissimile, sex et ipse syllabas illas instituit ad placitum quas in illa symphonia superius habes.

¹⁰Quarum siquidem syllabarum primam, id est *ut*, primae litterae manus Γ gamma Graeco scilicet aequavit, sicut A gravi *re* secundam, et *h* gravi *mi* tertiam, et C gravi *fa* quartam, D quoque gravi *sol* quintam, et E gravi *la* sextam.

¹¹*Ut* ergo quid est nisi quaedam ad hoc inventa syllaba, quod G vel C vel F, tam gravibus quam acutis et superacutis, in cantu sit subdita, nilque mutet unquam de dominarum suarum statu vel natura?

-
8. velis proferre A
 9. itaque *pro* tamquam A
 portali A
 speciebus diatessaron A
 10. hoc *pro* id A
 et *om* A

Again, sometimes the diatessaron has the semitone coming before the two whole tones, a fact which the progression BCDE demonstrates, and which the progression EFGa confirms. For this reason, it was clearly necessary for Guido, whose purpose was to express the whole system of song as concisely as possible, to invent these six syllables—neither more nor less—or the same number of similar ones. ⁷For who is not aware of the fact that this could have been done by means of the syllables *ba be bi bo bu bam* or indeed any other similar series? ⁸As regards anything which you wish to express in singing, if you observe the tone and the semitone, all will be well. ⁹Guido was anxious to set down on the left hand, as a sort of portable diagram, a true representation of the method of producing pitches which common usage had at that time. He was quite aware of the fact that, if the first four letters in due order, as shown there, produced one of the three species of diatessaron, no less does the presence of the following fifth and sixth letters produce the other two species of the same prime consonance; if you consider the matter carefully, beyond this you have no further differences in pitch pattern. And so he himself also established those six syllables on his own initiative, and these you find in the above melody.

¹⁰Of these syllables, he equated the first—that is, *ut*—with the first letter of the hand, which is the Greek letter Γ (gamma). The second syllable *re* corresponded with low A, the third, *mi* with low \flat , the fourth, which is *fa*, with low C, the fifth, which is *sol*, with low D, and the sixth syllable, *la* with low E.

¹¹*Ut* then is nothing other than a particular syllable invented for this purpose, such that, in a chant, it is aligned with G, C or F in either the low, high or very high registers, and in no way does it ever make any change in the status and nature of the pitches which govern it.

¹²Sic *re* quidem A D vel G, *mi* \flat vel E vel A, *fa* C vel F vel b, *sol* D vel G vel C, *la* necnon E vel A vel D subditae sunt.

¹³*Fa* tamen ubique principatum habere videtur, eo quod primam semper de tribus diatessaron differentiis inter has sex syllabas terminans, mox aliud *ut* excepto b rotundo inchoat, quod totum sequens descriptio clare demonstrat. ¹⁴Videbis etiam ibi sex illas syllabas adeo litteris obligatas, ut quicquid *ut re mi fa sol la* nobis insinuat, id totum Γ gamma ABCDE vel etiam CDEFGa vel FGabcd, tam sursum quam deorsum, et ubique locorum exprimat. ¹⁵Igitur neque sex litterae neque sex syllabae totum ut dicitur cantum in se continent, sed magis sex voces ita sub illis dispositae quatenus et tres illas quas ostendi diatessaron species enuntient, et cum uno solo minori semitonio quatuor tonos integros habeant.

¹⁶Quod Guido non ignorans, Γ gamma, quod iam pro nostro G positum in usu fuerat, sicque vocitatum ne nobis Latinis proferre G ante nostrum A grave foret, G Graecum inquam sic in principio manus quam instituerat ille reliquit. ¹⁷Nam ab A si coepisset, tres nunquam sub sex litteris sequentibus diatessaron species, nisi cum ingenti confusione vocum exprimere valuisset.

(Figura in pagina 530)

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- 12. (E vel A) *fa* C vel f vel b, *sol* D vel G vel c, *la* necnon E vel A (vel D) *om* A
 - 13. inter....terminans *in marg* H
 - 15. sollo A
 - 16. in usum positum A
non *pro* ne A
 - 17. incepisset *pro* coepisset A

¹²In the same way, *re* is aligned with A D or G, *mi* with Γ E or A, *fa* with C F or b, *sol* with D G or C, and *la* with E A or D.

¹³But *fa* seems to enjoy a pre-eminence at any point: from amongst the six syllables, it always marks the limit of the first of the three species of diatessaron; then another *ut* immediately starts, taking on the round b. The following description clearly demonstrates all of this. ¹⁴And you will notice in the diagram that the six syllables are so tied to the letters that, whatever *ut re mi fa sol la* tell us, the whole thing is expressed by the series Γ ABCDE, or CDEFGa, or FGabcd, in ascent and descent, and in every register.

¹⁵Consequently, neither the six letters nor the six syllables, as it is said, accommodate an entire melody within themselves; rather, the six pitches are placed beneath them in such a way as to express those three species of diatessaron which I have shown you, and include four whole tones plus just one minor semitone.²⁰

¹⁶Guido was aware of this, and he left the Greek letter Γ (gamma), which had by that time been established in use in preference to our own letter G, and thus named so that we Latins should not find it odd to put G before our A.²¹ This Greek G, I am saying, he left in this way at the start of the hand which he had established. ¹⁷For if he had started at A, he never would have been able to express the three species of diatessaron²² under the following six letters without at the same time introducing a horrendous confusion of pitches.

(Diagram on page 530)

²⁰That is, the three species in total embrace six pitches, which equal four tones plus semitone.

²¹Cf above *Pars secunda* 1.2.17:absurdum quippe fuerat ante nostrum A nominare G Latinum.

²²See above sentence 14 for Johannes' emphasis on the diatessaron species.

18Hic est *ut re mi fa sol la* tractum ex his sex litteris; varietate triplici constans ex diatessaron.

G	A	B	C	A	B	C	D	B	C	D	E	<i>ut</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>la</i>	
f	A	B	C	A	B	C	D	B	C	D	E	<i>ut</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>la</i>	
$\sharp f$	G	A	B	C	A	B	C	D	B	C	D	E	<i>ut</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>la</i>
Γ	A	B	C	A	B	C	D	B	C	D	E	<i>ut</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>la</i>	

f	C	D	E	F	D	E	F	G	E	F	G	A	<i>ut</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>la</i>
$\sharp f$	C	D	E	F	D	E	F	G	E	F	G	A	<i>ut</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>la</i>
	C	D	E	F	D	E	F	G	E	F	G	A	<i>ut</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>re</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>mi</i>	<i>fa</i>	<i>sol</i>	<i>la</i>

18. ex sex illis litteris A
variate A

¹⁸Here is the series *ut re mi fa sol la* based upon the six letters, consisting of the three varieties of diatessaron.²³

²³*Ibid.*

[IV]

¹Modus canendi per *ut re mi fa sol la* facilis verus atque brevissimus.

²Viso igitur quod nihil sit *ut re mi fa sol la* nisi quicquid sub paucis litteris etiam antiqui cantavere patres, non praemissis tot verborum ambagibus, ad quid nunc penes nos haec perditio temporis? ³Certe cum id ipsum sub una littera cantari posse probetur quod super tribus syllabis et sex mutationibus tanta verbositate crebro dicitur, nescio si sit in capite sanus quicumque non videt tempus illud perditum quod circa plura contextitur, si possit expleri per unum.

⁴Interroget ergo sic breviter cantor discipulum:

⁵Quot litteras habemus ad cantandum?

⁶*Discipulus*: Quindecim.

⁷*Cantor*: Recte dicis quindecim, quoniam et tot sunt quae supra descripsi tractando de solis litteris vocabula philosophorum, et infra quindecim voces totum instituere sancti nostri planum cantum. ⁸Omne enim quod in manu Guidonis est ante primum A vel ultra tertium, eiusdem rei replicatio est, quae nisi vox humana deficeret nunquam finem haberet. ⁹Sed quomodo dividuntur?

¹⁰*Discipulus*: In A grave, B grave, C grave, D grave, E grave, F grave, G grave, rursusque in a acutum, b acutum, c acutum, d acutum, e acutum, f acutum, g acutum, et iterum in a superacutum.

-
- | | |
|-----|--|
| 1. | A 48v H 60v |
| 7. | ut <i>pro</i> et ¹ A |
| 8. | enim <i>om</i> A
deficeret humana A |
| 10. | in ² <i>om</i> A
in ³ <i>om</i> A |

[IV]

¹A method of singing by means of *ut re mi fa sol la* which is easy, true and very concise.


²And so, now that we have seen that *ut re mi fa sol la* is really nothing other than whatever the ancient fathers also sang under a few letters, whilst avoiding so much complicated nomenclature, what is the purpose of this loss of tempo we experience? ³Since there is no doubt that the very thing that is frequently sung using three syllables and six mutations, with such an excess of terms, can itself be sung using one letter, I know not whether anyone is of sound mind who does not realize that a pitch suffers that loss of tempo when it is aligned with several syllables, if it is possible for it to be completed with one.

⁴Let the singer then briefly ask the pupil a question such as this:

⁵How many letters are there available to us for singing?

⁶*The pupil:* Fifteen.

⁷*The singer:* You rightly say fifteen, since they are the same number as the philosophers' terms which I have previously described in dealing with the individual letters, and our own saints established the whole of plainsong beneath fifteen pitches. ⁸For on the Guidonian hand, any pitch before the first A and beyond the third is a repetition of the same thing; there would be no limit to this if the human voice did not give out. ⁹But how are they divided up into individual pitches?

¹⁰*The pupil:* As follows: low A, low B, low C, low D, low E, low F, low G; then, high *a*, high , high *c*, high *d*, high *e*, high *f*, high *g*, and in addition, very high *a*.

¹¹*Cantor*: Et qualiter pronuntiantur?

¹²*Discipulus*: Tonum semper a littera in litteram subsequentem proferimus, quamquam **b** C tamen et E F nobis ubique gignant semitonium minus.

¹³*Cantor*: Nec alibi facis de littera ad litteram semitonium?

¹⁴*Discipulus*: Etiam inter A et b rotundum quando nobis occurrit tritonus inter F et **b** quadrum.

¹⁵*Cantor*: Quid ergo tunc de pessimo tritono facis?

¹⁶*Discipulus*: Ipsum in tertiam diatessaron consonantiam converto.

¹⁷*Cantor*: Recte respondes utique, nam si cantus ab F gravi vel acuto tendat in **b** quadrum aut e converso descendat, nisi praesto relictis omnibus b rotundum, quod est de medio, susceperis, ac tonum qui naturalis est ab A in **b** quadrum mox in simile caeteris minus semitonium mutaveris, horrendam tritoni duritiam non effugies atque discordiam.

¹⁸*Discipulus*: Vera sunt haec scio magister, et ad praesto modulandum sufficientia, sed oro doce me cito noscere lineas et spatia.

¹⁹*Cantor*: Animadvertite frater quoniam omnes litterae de diapason in diapason similes constitutae sunt sibi iugiter in lineis et spatiis contrariae. ²⁰Verbi gratia: Γ gamma quod, quia nostrum A praecedit, non dicitur G grave neque primum, nihilominus cum a Guidone monacho fuerit in linea situm, necesse est ut G grave sive primum in spatio sit, ac in linea e contrario acutum. ²¹Quid ultra differs ad cantandum? ²²Sic de tribus A *a a* sic de caeteris litteris habes.

-
12. (quamquam) tum *add* A
tamen *om* A
13. in *pro* ad A
14. (Discipulus) Nec....semitonium *dele* H
occurrit *scripsi* occurrunt H occurrerint A
15. tunc *om* A
16. tertiam *in marg* H
17. at *pro* atque A

¹¹*The singer:* And how are they produced?

¹²*The pupil:* Between one letter and the following one we always sing a tone, though $\text{C}\flat$ and C, together with E and F produce a minor semitone on all occasions.

¹³*The singer:* And do you not produce a semitone between one letter and another anywhere else?

¹⁴*The Pupil:* Yes—also between A and the round b, whenever we encounter the tritone between F and the square $\text{C}\flat$.

¹⁵*The singer:* How then do you deal with the dreadful tritone?

¹⁶*The pupil:* I convert it into the third species of diatessaron.

¹⁷*The singer:* You are undoubtedly right in your answer, for in the case of a chant which ranges from low or high F up to the square $\text{C}\flat$, or conversely its descending form, unless you promptly abandon everything and adopt the round b, which is to hand, and immediately change the whole tone which naturally exists between A and the square $\text{C}\flat$ into a minor semitone like the rest, you will not avoid the dreadful harshness and dissonance of the tritone.

¹⁸*The pupil:* I realize, dear master, that these things are true, and that they suffice for the purpose of singing at sight, but now, I beg you, teach me to recognise quickly the lines and spaces.

¹⁹*The singer:* Observe then, dear brother, that all similar letters from one diapason to another are arranged so as to be always alternating with each other on the lines and spaces. ²⁰For example: the note Γ (gamma), because it precedes our own A, is not called 'low G' or 'the first G'; nevertheless, because it was placed by brother Guido on a line, the first or low G must be in a space, and the high g, on the other hand, must be on a line. ²¹What is to stop you singing? ²²The same applies to the three A's, and indeed to the rest of the letters.²⁴

²⁴Cf Ramos da Pareia in *Musica practica* p. 53: quoniam linea vel spatium non arguit differentiam in musica, ut frater Johannes Carthusiensis conatus est probare, fuisse solum quindecim nervos ab antiquis positos; propter hoc, quod a re et a la mi re secundo in spatio collocantur.*

²³*Discipulus:* Vereor ne dum mihi licet raro Γ gamma Graecum occurrerit, aut una de quatuor illis superacutis, quas ultra quintam decimam chordam Guido monachus adiunxit litteris, quid tunc agere debeam ignorem. ²⁴Sed et illud me non parum sollicitat, quod totus mundus, ut ita loquar, sex illis syllabis utitur ad cantandum, ego vero per has quas doces litteras solus canere debeam.

²⁵*Cantor:* Ad haec tibi respondebo breviter: si novam tibi fabricare voluero pro meo sensu musicam, si tonos et semitonia, sine quibus nemo canit aut cecinit, unquam reprobare nitar, si demum aliquam ex me tibi tradere velim quam non habuere patres modulandi formam, veram fateor habes quaestionis materiam.

²⁶Quod si tibi pro tam prolixa docendi et, ut reor, ab avaris cantoribus pro solis nummis trahendis inventa, brevem atque perfacilem ad ignotos cantus viam demonstro, quid ambigis, cum praesertim per suas litteras antiqui teste Boetio Graecorum cecinerint philosophi, sicut per Latinas istas cantabatur ante Guidonem, ut supra legis, in Ecclesia Dei? ²⁷Disce quaeso patienter tonos ac semitonia, ditonos ac semiditonos, diatessaron, diapente, diapason, quae supra tractando de litteris exposui, quaeque diligenter discernere debes si non vis in aliquo tam sursum quam deorsum dubitare. ²⁸Quis oro nesciat Γ gamma, sicuti G grave tono sub A, debere deprimi, et quotquot sint litterae superacutae non aliter quam acutae tractari?

²⁹*Discipulus:* Grata mihi responsio tua; paratus sum: en cantemus.

-
- | | |
|-----|---|
| 25. | voluero fabricare A |
| 26 | tam <i>pro</i> tibi A |
| | auris <i>pro</i> avaris A |
| 27. | dictonos A |
| | semiditonia A |
| | quamquam <i>pro</i> quaeque A |
| 28 | sine <i>pro</i> sint A |
| | (superacutae) non aliter quam acutae (tractari) <i>om</i> A |

²³*The pupil*: I am afraid that I shall not know what to do on those rare occasions when I might encounter the note Γ(gamma) or one of the four very high letters which brother Guido added to the original fifteen.²⁵ ²⁴But this disturbs me not a little, that the whole world, so to say, makes use of these six syllables for singing, whereas I would have to sing by myself if I use these letters which you teach me.

²⁵*The Singer*: To what you have just said I will reply briefly: if I wished to compose for you some new music according to my own ideas, if ever I was anxious to reject the tones and the semitones, without which no-one sings or has ever sung, and if finally I wished to hand over to you some way of singing of my own invention which the ancient fathers did not possess, then I confess you have real grounds for complaint.

²⁶But if I am demonstrating to you a concise and easy way of approaching unfamiliar chants, in place of the long-winded methods of teaching, invented, in my opinion, by greedy singers merely for the sake of making money, why are you unsure, especially since, on the evidence of Boethius, the ancient Greek philosophers sang by means of their own letters,²⁶ just as chants were sung by means of these Latin letters in God's Church before the time of Guido, as you have read above? ²⁷Patiently learn, I beg you, the tones and the semitones, the ditones and the semitidones, the diatessaron, the diapente, and the diapason—things which I have explained above in dealing with the letters, and which you must learn to distinguish with great care, if you do not wish to entertain doubts about anything in going up the scale or coming down. ²⁸I ask you, is there anyone who does not know that Γ (gamma) should be produced at a whole tone's distance below A, in the same way as low G, and that all the very high pitch letters are used just as the high ones are?

²⁹*The pupil*: I welcome your reply, and I am now prepared. Come, let us sing!

²⁵Guido's gamut is in *Micrologus* 2 (pp. 93-95).

²⁶For the Greek notational signs, see *De inst. mus.* 4,3-4 (309,14-312,5).

30Cantor: Age rursum et prius mecum per meras litteras cane; quo subiectis hic *ut re mi fa sol la* litteris, mox te per utrumque modulari recte faciam, non modo cantum divinum sed et perfectum, ut aiunt moderni, contrapunctum.

31Discipulus: Hoc est ad quod anhelō: cantemus.

32Cantor: EIA CANTEMUS.

33Haec docet praesto figura modulari per litteras breviter ac faciliter, et per *ut re mi fa sol la*.

Tonus

T

T

A

s

B

T

C

T

D

s

E

T

F

T

G

s

A

S

b

s

♭

T

C

T

D

s

E

T

F

T

G

s

A

S

b

s

♭

T

c

T

D

T

E

Ut

Re

Mi

Fa

Sol

La

Fa

Sol

La

Fa

Mi

Fa

Sol

La

Fa

Sol

La

Fa

Mi

fa

Sol

La

T Tonus
s Semitonium minus
S Semitonium maius

34Discipulus: Cerno nunc o magister quod ita sit ut dicis, nam quicquid intendendo seu remittendo voces aut illas litteras aut illas syllabas aut etiam notas istas quadras revolvam in ore, necesse est ut totum tonus aut minus semitonium discutiat primo creatus in mente. 35Nec me latere potest a modo quod sicut non solum inter Γ gamma Graecum et A grave tonus est, sed etiam inter omnem litteram et litteram sequentem, gravem acutam vel superacutam, praeter ♭ C et E F, quae minus invicem habent continuo semitonium, ita quidem *ut re mi fa sol la*, vel e converso, quatuor procreare tonos necesse est integros, eo quod solum *mi fa* vel *fa mi* semitonium ubique teneat.

30

35.

quae pro quo A
gamma om A
aut pro vel¹ A
propter pro praeter A

³⁰*The singer:* Come then! First sing along with me and use the letters totally by themselves. Then we shall place the syllables *ut re mi fa sol la* here underneath: in this way I shall quickly enable you to sing correctly in both styles—not only the divine chant, but also, as the moderns call it, perfect counterpoint.

³¹*The pupil:* This is what I am desperate for: let us sing!

³²*The singer:* YES! LET US SING!

³³This diagram which follows soon offers a quick and easy way of learning to sing by means of the letters, and by using *ut re mi fa sol la*.

T Whole tone
s Minor semitone
S Major semitone

³⁴*The pupil:* I now realise sir that it is just as you say, for whatever I produce orally by raising or lowering pitches, letters, syllables, or even those square notes, the tone and the semitone, first created in the mind, must control everything. ³⁵And from now on, I am able to grasp the fact that, not only does the distance of a whole tone separate the Greek Γ from the low A, but that the same interval occurs between each letter and its neighbour in the low, the high, and the highest registers; that the exceptions to this occur between *b* and C, and E and F, which are instead invariably separated by the distance of a minor semitone.

³⁶Hinc est quod iuste dicitur totum *ut re mi fa sol la* capere cantum, non quia litterae sunt et syllabae, cum id quaevis aliae sex syllabae sibi vindicare queant, sed vi quatuor horum tonorum cum illo semitonio quos in se concludunt. ³⁷Non aliter enim quam G \flat vel C E vel F *a*, ditonum exprimit *ut mi* vel *fa la*, nec aliter A C vel \flat D vel E G semiditonum profert quam *re fa* vel *mi sol*, nec aliter G C vel A D vel \flat E tres diatessaron differentias, quae nil habent ultra se novum, detegunt, quam *ut fa*, vel *re sol*, vel *mi la*. ³⁸Cum ergo nil exprimat *ut re mi fa sol la* quod prius non sit a sex istis litteris GABCDE vel CDEFGA gravibus acutis et superacutis expressum, scio quod sufficiat una de sex illis syllabis pro qualibet littera, nec sit opus ad cantandum vel discendum dicere *fa ut* aut *sol ut*, et his similia, quae quidem egent ad extricandum verbositate nimia, nam et quando verba sancta sub nostris notis quadris proferimus, stulti videremur si talia per os nostrum volveremus. ³⁹Verum quia brevem hanc et expeditam doctrinam tuam habere caram delibero, doce discernendi modum etiam istas syllabas breviter obsecro. ⁴⁰*Cantor*: Quia recte sapis nimirum, et quod ad rem pertinet deposcis, neque tecum ultra de duarum aut trium sub una littera contentu syllabarum superflue disputandum existimo. ⁴¹Frustra namque laborat qui quod sub uno clarum est in multis intricare nititur.

36. horum *om* A
37. vel¹ *et* vel² *om* A
38. discere *pro* dicere A
39. modum *om* A
quaeso *pro* obsecro A
40. superfluum A

³⁶In just the same way, *ut re mi fa sol la*, ascending or descending, of necessity produce four whole tones, because *mi to fa*, or *fa to mi*, only occupies a semitone, in any register. Thus it is rightly said that *ut re mi fa sol la* control an entire chant, not because they are letters and syllables—since any other six syllables you like could claim to achieve the same—but because of the effect of these four whole tones and the minor semitone which the series contains within itself. ³⁷For *ut mi*, or *fa la*, produce a ditone, just as the intervals G to \flat , C to E, or F to *a* all do. *Re fa*, or *mi sol*, produce a semiditone, like the intervals A to C, \flat to D, or E to G. *Ut fa*, *re sol*, or *mi la*, like the intervals G to C, A to D and \flat to E, reveal the three species of diatessaron, beyond the limits of which nothing new exists. ³⁸Since therefore the series *ut re mi fa sol la* produces nothing beyond what was expressed by those letters GABCDE, or CDEFGA, in the low, the high or the highest registers, I know that just one of these six syllables suffices for any letter, and that there is no need, either for singing or learning purposes, to say *fa ut* or *sol ut* or suchlike, since such processes need too much verbiage to work them out. Also, when we are singing the sacred words under those square notes of ours, we would look very foolish if we were rolling things like that around our mouths. ³⁹However, since I intend to hold dear this concise and convenient method of yours, teach me, I beg you, a method of quickly distinguishing between the six syllables also.

⁴⁰*The singer:* Because there is no doubt that you are sensible, and demand of me what is relevant for the matter in hand, I do not think that I should waste time arguing with you any more about the conflict of two or three syllables under one single letter. ⁴¹For he labours in vain who seeks to make something intricate and involved when it is perfectly clear in simplicity.

⁴²Nam ut pauca tibi sint pro pluribus in exemplum, si C solum in gravibus te teste nobis sufficere possit ad cantandum, et aliud in acutis, ad quid *fa ut* in uno et *sol fa ut* in altero? ⁴³Recordare ergo quod *fa* syllabam aliis omnibus praeposuerim, quam cum habueris, omnes alias habes. ⁴⁴*Fa* siquidem, si voces intendas, semitonii semper finis est, quas cum remiseris e diverso primordium. ⁴⁵Ascendendo etenim semper *mi fa* semitonium minus est, et e contra *fa mi* descendendo. ⁴⁶Quid nunc aliud quaeris? ⁴⁷Habe *fa* et totum habes. ⁴⁸Sunt autem in manu Guidonis septem *fa* quam hic tibi depingam.

⁴⁹*Discipulus*: Scio quod septem sint, sed quo vocabulo distinguantur ignoro.

⁵⁰*Cantor*: Disces prius modulari tonum ac semitonium, et discernere per quasvis litteras graves ut docui vel acutas et superacutas eleganter. ⁵¹Dein canere volens per illas sex syllabas iuxta communem usum, primum *ut* vocabis de gamma, primum *re* de A gravi, primum *mi* de \flat gravi, primum *fa* de C gravi, primum *sol* de D gravi, primum *la* de E gravi, sicque de relictis. ⁵²Nam et omnes alias huiusmodi syllabas ab illa littera sub qua iacent denominabis tam acutas quam superacutas, quemadmodum denominasti sex illas.

(Figura in pagina 544)

-
- | | |
|-----|---|
| 45 | Ascendo A
enim A
e om A
descendo A |
| 47. | tonum <i>pro</i> totum A |
| 49 | (quod) septem (sint) <i>dele</i> A
distinguuntur A |
| 52. | et om H |

⁴²Now, to let a few things stand as examples for many—if, as you agree, C alone in the low register can suffice for singing, and another c alone in the high, what is the point of having *fa ut* in the one, and *sol fa ut* in the other?

⁴³Remember then that I have placed the *fa* syllable before the rest, for if you understand this, you understand all the others. ⁴⁴In fact, *fa* always forms the upper limit of the semitonal interval when you ascend in pitch; conversely, it forms the start when you descend. ⁴⁵In its ascending form, the minor semitone is invariably *mi fa* and *fa mi* when it descends. ⁴⁶What else do you want? ⁴⁷Get *fa* and you have got the rest. ⁴⁸There are seven *fa* syllables on the Guidonian hand, and I shall describe it here for you.

⁴⁹*The pupil*: I am aware that there are seven, but I do not know by what nomenclature they are distinguished.

⁵⁰*The singer*: First learn to sing, and to distinguish nicely the tone and semitone by means of any letters you like, as I have taught you, in the low, high or very high registers. ⁵¹Then if you wish to sing by means of these six syllables according to common usage, you will call the first *ut* based on gamma, the first *re* on low A, the first *mi* on low B, the first *fa* on low C, the first *sol* on low D, the first *la* on low E, and so on. ⁵²For you will also name all the other syllables of this kind from the letter beneath which they lie, in both the high and the very high registers, in the same way as you named the previous six.

(Diagram on page 544)

⁵³*Fa* quodlibet intellige tonum ac semitonium discutere, si cupis quam faciliter et non mutando canere.

⁵⁴Guido quae secuntur:

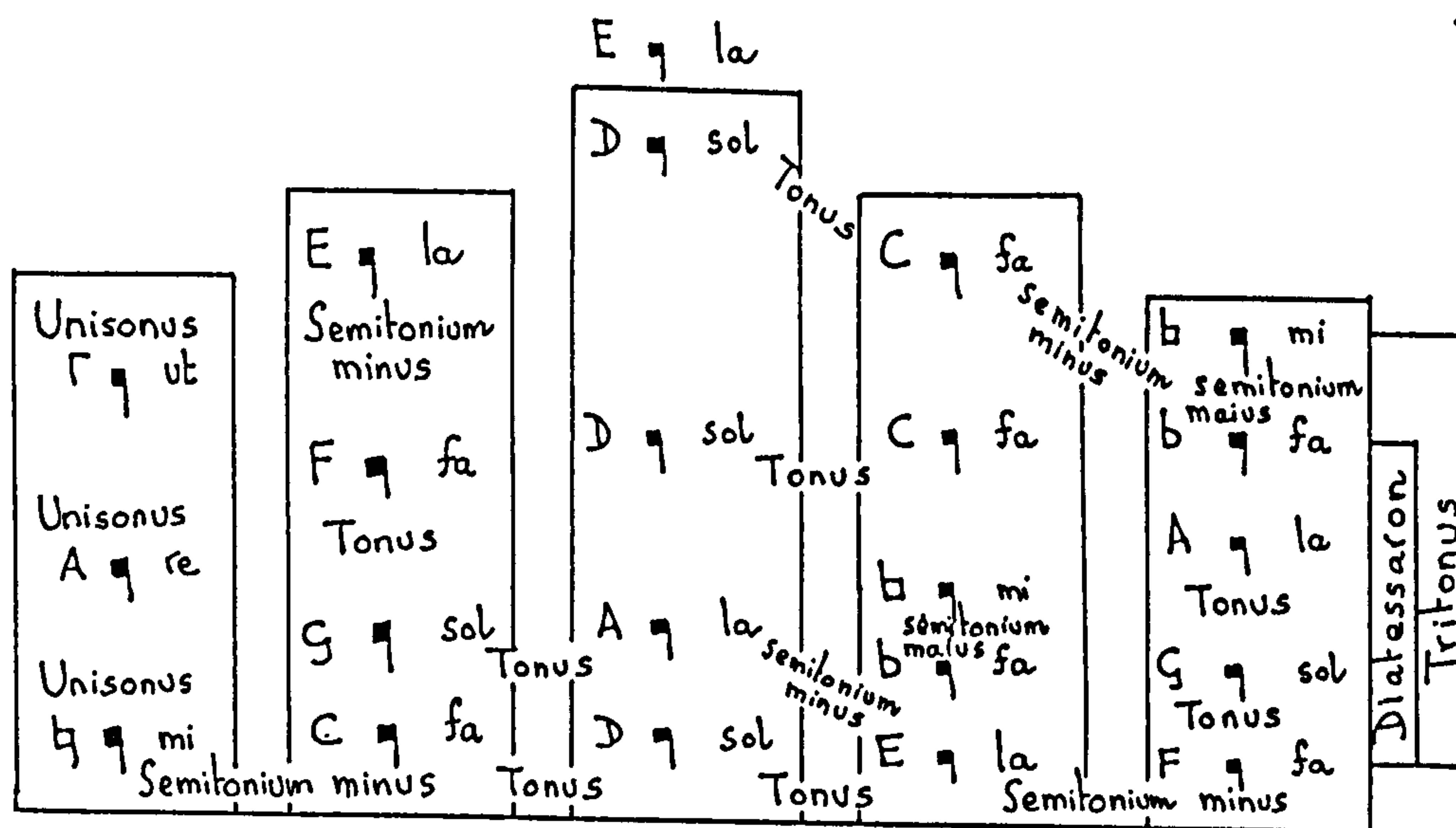
⁵⁵Inventor huius regulae Guido fuit Aretinus, illo Romano principe Conrado, sicut legimus, regnante, Christum post annos mille cum viginti quinque; non tamen id instituit tot cum verborum verborum. ⁵⁶Hic Benedicti monachus mirifice decoravit totum antiphonarium his lineis et spatiis, et ad canendum litteras magis laudavit quam syllabas quae sunt *ut re mi fa sol la*, sic dicens illis in rhythmis:

⁵⁷*Solis notare litteris
Quibus ad discendum cantum
Si frequentate fuerint*

*Optimum probavimus
Nihil est facilius,
Saltem tribus mensibus.*

⁵⁸Hoc esse diatonicum genus nemo dubitet, si vel parum sit sciolus, et legerit Boetium.

MANUS GUIDONIS



⁵³You must understand that any *fa* distinguishes the tone and the semitone, if you wish to sing with the greatest ease, and avoid mutation.

⁵⁴What follows is taken from Guido:

⁵⁵The inventor of this rule was Guido of Arezzo, who lived, as we have read, during the reign of Conrad, the Roman Emperor, a thousand and twenty five years after the birth of Christ.²⁷ He did not, however, make this rule to contain so many verbal complexities. ⁵⁶This Benedictine monk beautifully embellished the whole of the Antiphonary²⁸ with these lines and spaces, and recommended that for singing, these letters should be used, rather than the syllables *ut re mi fa sol la*, speaking as follows in the following rhymes:

⁵⁷If men for threemonth themselves apply,
Then for to sing no easier way can I
Commend than these letters solely
For to learn thereby.²⁹

⁵⁸No-one should doubt that this is the diatonic genus, if one has even a little grain of knowledge, and has read Boethius.

GUIDO'S HAND

²⁷See above *Pars secunda* 2.1.12.

²⁸See above *Pars secunda* 2.1.20 for earlier reference to Guido's Antiphonary.

²⁹See above *Pars secunda* 2.1.22 for rhymes.

⁵⁹*Discipulus*: Delectat admodum hanc quam probas manum, ab illo Dei servo Guidone monacho primum excogitatam, inspicere, sed et inspiciendo cogor quod vir tam nobilis ingenii maximeque brevitati studens, ut in illis apparet rhythmis, sex illas syllabas ita binas atque ternas idem replicando saepius inculcaverit, aut quod ante clarum et breve per litteras fecerat, postea sic obfuscare voluerit, non credere.

⁶⁰Nam si semel primum *ut re mi fa sol la*, quod sub Γ (gamma) ABCDE cadit, in bonam practicam redezero, velim et nolim, ut ita loquar, *mi re ut* naturaliter sub omne *fa* necnon *sol* et *la* cadunt subsequenter in ore meo. ⁶¹Non tamen haec dixerim ut me putes huiusmodi virum opinari sex illas excogitasse syllabas ad necessitatem, aut fortassis ad toni semitoniive minoris abolitionem, cum et illis utique praeposuerit litteras, sed ad leviolem potius infantium quicumque tonum aut semitonium capere nequirent introductionem, etsi postea totum ut rei probat effectus, a nostris modernis tot verborum ambagibus fuerit intricatum. ⁶²Sed quid ultra? Da mihi quaeso post haec de plano cantu vel parvulum exemplum, ubi *fa* prorsus de b rotundo propter tritonum habeam, et quem non solum per litteras, sed per illas syllabas et notas quadras modulari queam.

⁶³*Cantor*: Exemplum quidem hic de plano cantu tibi dabo clarissimum, quod modulari te docebo per voces mixtas, hoc est per contrapunctum.

(Exemplum in pagina 548)

⁵⁹*The pupil:* It gives me great pleasure to examine this hand of which you approve, the hand first invented by that goodly servant of God, brother Guido. However, on perusal, I have to find it hard to believe that a man of such a noble intellect who is anxious to achieve the ultimate in conciseness—as appears from those rhythms—has pressed into service these six syllables two and three times like this, by repeating the same thing several times, or that he afterwards sought to obscure the topic which he had previously rendered clear and concise by means of the letters. ⁶⁰For once I have got control of the first series *ut re mi fa sol la*, that is, the series which falls beneath letters ΓABCDE, then like it or not, so to say, *mi re ut* subsequently fall naturally underneath every *fa sol la*.

⁶¹However, I do not make this point so that you may imagine that I think that a man of this kind invented the six syllables out of necessity, or perhaps with a view to abolishing the tone and the semitone, since he appended letters to them also. Rather do I hold the view that he did this to provide an easier introduction for those children who could not grasp the tone and the semitone, even though later the whole subject was made more complicated by our own moderns because of the use of so many terminological ambiguities, as the results of it prove. ⁶²But why should I say more? Give me, I beg you, after this, even a brief example from a plainsong melody where I may have *fa* representing the round b because of the tritone, and which I may be able to sing, not only by using the letters, but also the syllables, and the square notes.³⁰

⁶³*The singer:* At this point, I shall indeed provide you with a very clear example from a plainsong melody—which I shall teach you to sing by intermingling parts, that is to say, by using counterpoint.

(Example on page 549)

³⁰Johannes discusses the *fa* syllable above at *Pars prima* 2.3.13.

Handwritten musical score for three voices (A, S, T) in G major, 4/4 time. The lyrics are: "A - ve - - Re gi na cae-lo - - - - rum Ma-ter Reg is an gel-o-o-rum O Ma-ri-a flos vir-gin-um Ora pro no-bis Do mi - - - num". The notation includes solfège syllables (fa, mi, re, ut, sol, la) above the notes.

⁶⁴*Discipulus*: Hoc tuum valde mihi placet o magister exemplum, in quo quidem ad solas duas illas ut video claves, F grave scilicet et c acutum, quae et duo *fa* continent, intento tam chordis quam et carnis oculo, per litteras, per syllabas ac per notas quadras si velim canere discam. ⁶⁵Sed quid hoc mihi totum, si genus, si speciem, si constitutionem, si modum, si denique partes et particulas singulasve tam huius amoenissimi quam et devotissimi cantus melodias diiudicare nesciam?

64. illas duas A



⁶⁴*The pupil:* I am absolutely delighted, my dear teacher, with this example of yours: in it both the physical and the mental eye are concentrated upon just the two signs, as far as I can see, the low F and the high c, which contain two *fa* syllables; I shall, if I wish, learn to sing by means of the letters, the syllables and the square notation. ⁶⁵However, what use is all this to me if I do not know how to make decisions about the genus, the species, the system, the mode, the larger intervals and the smaller, and the individual melodic shapes of this most beautiful and devotional chant?

⁶⁶*Cantor*: Quod quaeris fateor quaeri potest ac debet, non in hoc tantummodo cantu sed in caeteris omnibus, nec scio si cantor haec ignorans nomen recte gerat cantoris. ⁶⁷Quis enim nesciat omne quod nos Latini canimus sub solo contineri genere diatonico? ⁶⁸Quid autem sit genus diatonicum, quid enharmonicum atque chromaticum hic non replico, nam de his disputatum est in eo quae scripsi de vetustissimo ritu canendi libello. ⁶⁹Quem quippe libellum si legeris, et ipsum quod scribo pauperibus clericis opusculum, huic tamen annexum atque praepositum, diligenter inspexeris, quod hic cantus, sive per litteras sive per syllabas aut per notas quadras cantetur, in diatonico sit genere, in quarta diapason specie et eiusdem quarta constitutione creatus, ac per consequens de primo modo primove, sicut aiunt, authentico non dubitabis. ⁷⁰Hoc tamen interest inter species diapason et constitutiones, quod species in uno duobus et pluribus considerari solent intervallis, constitutiones vero non nisi totis de medio, sicut satis testatus sum, simul annumeratis vocibus.

⁷¹Nunc autem ad partes huius cantus et particulas accendendum. ⁷²Partes etenim appello diapason, quod totum est, diatessaron ac diapente quasi maiores, particulas vero tonum, semitonium, ditonum et semiditonum quasi minores.

⁷³D F in primis sive *re fa* sub eisdem litteris semiditonus est ascendendo, qui licet duo possit habere intervalla, non est hic nisi in uno.

68. Quis *pro* Quid A
 vetussimo A
 canendi ritu A
73 hic *om* A

⁶⁶*The singer*: I agree that what you ask can and should be asked, not merely as far as this chant is concerned, but also in the case of all the other chants, and I am not sure whether a singer who is unaware of these matters rightly deserves to be called a singer. ⁶⁷For is there anyone who does not know that everything that we, as Latins, sing is contained solely within the diatonic genus? ⁶⁸I do not intend at this point to repeat my explanation of the diatonic, enharmonic and chromatic genera, for I have discussed these in the book I wrote about the ancient way of singing.³¹ ⁶⁹If you read this treatise, and also this actual little work which I am writing for the use of poor clerics, which is joined by way of preface to it, you will remain in no doubt that this chant is of the diatonic genus, whether it be sung by means of the letters, the syllables, or the square notation; also that it has been composed within the fourth diapason species and the fourth system of the same, and that consequently it is in the first mode, or the first authentic mode, as they call it. ⁷⁰But this is the difference between species of diapason and 'systems'—that 'species' are usually regarded within the context of one, two, or more intervals, whereas 'systems'—and I have testified to this fact often enough—must be considered within the context of the sum total of all the pitches.³²

⁷¹But now I must begin to deal with the 'parts' and the 'particles' of this chant:

⁷²by 'parts' I mean the larger units—the diapason, which is the culmination of them all, the diatessaron and the diapente. The 'particles' on the other hand are the smaller units—the tone, the semitone, the ditone and the semiditone.³³

⁷³To begin with, D F, or *re fa*, placed beneath the same letters, in ascent form a semiditone; although it is possible for it to accommodate two intervals, in this context it accommodates only one.

³¹See above *Pars prima* 2.7, 3.1 and 3.2.

³²Cf above *Pars prima* 3.5.10-12.

³³Cf *Lucidarium* 9.1.7: Ysidore: Toni et semitonia sunt particule consonantiarum. The Isidore reference cannot be traced.

⁷⁴F E sive *fa mi* semitonium est descendendo, E D tamen sive *mi re* tonus aequè descendens, atque D C vel *re ut* tonus, F D vero sive *fa re* semiditonus est in suis duobus intervallis e contra descendendo, sed F C sive *fa ut* tertia diatessaron species in solo triplici quod habere potest intervallo.

⁷⁵C F autem vel *ut fa* tertia necnon diatessaron species est, sed in uno tantum ascendens intervallo, F G *a* ditonus in suis ascendens duobus intervallis sive *fa sol la*, sed *a b* rotundum semitonium minus est, aut *la fa* sursum tendendo. ⁷⁶Hic est tertius de tritono tonus in minori semitono commutatus, nam cum ab F gravi conscendat hic, ut audisti, ditonus, necesse est relicto *b* quadro quod tono semper *a* superat et *mi* syllabam habet, *b* capere rotundum, quod e contra semper ad *a* minus habet semitonium, et *fa* recipit syllabam ad id aptissimam ministerium. ⁷⁷Sicut ergo *la* de *a* acuto et *fa* de *b* rotundo caput amputavere superbi tritoni de F gravi ad *b* quadrum acutum scandere nitentis fere per medium, sic et idem *fa* descendens ad idem *a mique* sibi creans praefatum, ac eundem quamquam descendentem ad F grave tritonum paene quidem acephalum, hoc est absque capite, fecit.

-
74. tamen *om* A
sive vero A
contra *pro* e contra A
75 diatessaron species tertia A
ascendens *om* A
76. relicto A
minestrium A
77. acutuo A
grave *pro* gravi A
praefactum A

⁷⁴F E, or *fa mi* in descent form a semitone; E D, or *mi re* however form a whole tone likewise in descent, as do D C, or *re ut*.. However, F D, or *fa re*, form in descending a semiditone in its two intervals, but F and C, or *fa ut*, produce the third species of diatessaron, which alone can accommodate it within the threefold interval.

⁷⁵C F, or *ut fa* also produce the third species of diatessaron, but ascending by means of only one interval; the pitches F G *a*, or *fa sol la* form a ditone in ascending through its two intervals. However, *a* and round b, or *la fa*, in ascending in pitch form a minor semitone. ⁷⁶Here, the third tone in the tritone interval is changed into a minor semitone, for, as you have heard, when we have this ascending ditone from low F, it is necessary for it to abandon the square *h* –which is invariably higher than *a* by a whole tone, and always represented by the *mi* syllable– and adopt the round b. The round b is always, in contrast, a minor semitone above *a*, and adopts the *fa* syllable, which is ideally suited for this function. ⁷⁷Therefore, just as when high *a* is *la* and round b is *fa*, they cut the head nearly through the middle of the proud tritone, which longs to climb from low F to reach the high square *h*, so the same *fa* syllable, in descending to the same *a*, and creating for itself the *mi* syllable mentioned previously, renders the tritone, even in descent to the same low F, virtually acephalous, which means 'without a head'.

⁷⁸*Discipulus*: Ambigendum hic arbitror si sit semper ab F in ♭ quadrum tritonus, aut signato b rotundo si sit totus abolitus.

⁷⁹*Cantor*: Pergit quispiam ad urbem tribus a se miliaribus distantem, sed auditore civile propinquus ad unius milliaris medium ultra quidem progredi non audet. ⁸⁰Numquid ergo illa tria millaria tria propter hoc non erunt? Absit.

⁸¹Interrogatus itaque si sit hic tritonus tam ascendens quam descendens, dic audacter ita cursu naturali vocum qui mutari non potest. ⁸²Verens tamen eius duritiam, non attingis ex industria sui verticis cacumen figens prius in b rotundo gressum.

⁸³*Discipulus*: Placet. Attamen si nobis unquam aliter occurrat tritonus quam in tribus intervallis ut hic dubito, nec certus sum si semper sic in tertiam diatessaron speciem illum cum occurrerit vertere debeam cum b rotundo.

⁸⁴*Cantor*: Occurrit nobis plane tritonus etiam in uno quandoque vel duobus sicut et diatessaron intervallis ascendendo seu descendendo, nec debes unquam illum integrum enuntiare si commode tamen possis periculum evadere, quamvis in plano cantu facere tritonum, non est mortale peccatum. ⁸⁵Scito tamen quod si possis et nolis inique agis, quoniam dulces cantus quos sancti nostri coaptavere verbis immutas et confundis.

78. sigato A

79. a se *om* A

tumore *scripsi* rumore HA

ultra medium A

quidem *scripsi* siquidem HA

80. (Numquid) ergo tria illa A; ergo *om* H

81. hic *om* A

audaciter A

83. (Attamen) si nobis..... intervallis ut (hic dubito) *om* A

84. plane nobis A

et *om* A

85. Scio *pro* Scito A

captavere A

⁷⁸*The pupil:* At this point, I think that it is unclear whether a tritone always exists between F and the square \flat , or whether it is totally done away with by means of the sign for the round b.

⁷⁹*The singer:* Someone is travelling to a city which is three miles distant, but when he is half a mile off, he hears that civil unrest has occurred, and he dares not go any further. ⁸⁰Will these three miles then not remain as three because of this? What nonsense. ⁸¹And so when you are asked whether the tritone exists here both in an ascending and a descending form, you must say with courage that this is the case because of the natural progression of pitches which cannot be altered. ⁸²But fearing its harshness, you purposely do not reach its top pitch, and halt on round b.

⁸³*The pupil:* Very well. But I wonder whether the tritone ever occurs somewhere other than in the three intervals as here, and I am not sure whether I ought always to convert it into the third diatessaron species by means of the round b whenever it occurs.

⁸⁴*The singer:* We clearly encounter the tritone expressed just as often as one or two intervals just as we do the diatessaron, both in its ascending and descending forms; you should never express it at its full extent if you can conveniently avoid this danger. However, to produce a tritone in plainsong is not a mortal sin.³⁴ ⁸⁵But, if you can, and are not prepared to do so, you must realize that you are acting wrongly because you are altering and obscuring the beautiful melodies which our saints fitted to the texts.

³⁴Cf Ramos da Pareia *Musica practica* p. 50: Tritonum facere, ut frater Johannes Carthusinus dicit, non est peccatum mortale, ut multi credunt.

⁸⁶*Discipulus*: Non ultra te volo magister interrogare, ne te cogam multa replicare.

⁸⁷*Cantor*: Sufficit absque dubio frater quod audisti super his ad omnem aliorum cantuum investigandam virtutem, si tamen adhuc audieris ubi cantus iste formam propriam primi modi sibi vindicet. ⁸⁸Hic cantus nimirum in D gravi finitur, et ubicunque D grave reppereris, in eo vocem ibi finalem habes, aut in eius exordio vel post vel in medio. ⁸⁹Vis nunc videre pulcherrimam in illo primi modi sive tropi formam? ⁹⁰Ad D grave quaeso vel ad *re* sub eodem, quod est super ultimam dictionis 'angelorum' syllabam praesto converte visum. ⁹¹Nonne vides ibi sequi protinus *a* acutum sive *la* sub eodem, ac per consequens primam diapente sub uno intervallo speciem? ⁹²A quo quidem *a* sive *la* sed supra secundam dictionis 'Maria' syllabam habes ilico semiditonum in *c* acuto vel in *fa* sub illo per solum intervallum, ac subito tonum adhuc in *d* acuto vel in *sol* eiusdem ac primam consequenter ab *a* vel *la* in D vel *sol* diatessaron in duobus intervallis speciem. ⁹³Haec est vera proculdubio primi tropi vel authentici modi forma, quoniam ibi D ad *a* sive *re la*, rursumque *a c d* seu *la fa sol* quartam formant diapason speciem in constitutione quarta, quae constitutio quidem ab ipso D gravi cadit in eodem acuto *d* per septem intervalla sub ordine vocum.

86. magister volo A

87. investicandam A
vindicet A

88. ibi *om* A

92. (*a* acutum sive *la*) sub eodem ac per consequens primam
diapente sub uno intervallo speciem? A quo quidem *a* sive *la*
(sed supra) *om* A

⁸⁶*The pupil*: I do not wish to question you any further, my dear teacher, lest I compel you to repeat yourself on many subjects.

⁸⁷*The singer*: What you have heard, dear brother, about these matters is clearly enough for you to be able to examine every artistic merit inherent in other melodies, if you also heard in what features that melody assumes the appropriate structure of the first mode. ⁸⁸Clearly this melody ends on low D, and whenever you find low D within a melody, on that note you place the final, whether it be at the beginning, in the middle, or towards the end. ⁸⁹Now do you wish to observe the splendid structure of the first mode or trope found in this melody? ⁹⁰Direct your attention promptly, I beg you, to the low D or *re* which lies underneath it: this note is placed above the last syllable of the word 'angelorum'. ⁹¹Surely you see that it is high *a*, or *la* beneath the same, which immediately follows it, and that consequently these pitches form the first species of diapente expressed as one single interval? ⁹²Between this *a*, or *la*—that is, the one which lies above the second syllable of 'Maria'—and high *c*, or *fa*, you have a semiditone as one interval, then straightway a tone between this note and high *d*, or *sol*. The result is that between *a*, or *la*, and *d*, or *sol*, you have the first diatessaron species expressed in two intervals. ⁹³This is undoubtedly the true structure of the first authentic trope or mode, since D *a*, or *re la*, and again *a c d*, or *la fa sol*, produce the fourth species of diapason in the fourth system. This system falls between the said low D and the same high *d* through seven intervals in its order of pitches.

⁹⁴Post haec descendit iste cantus ab illo *d* acuto in *c* per tonum, ac in *b* quadrum per minus semitonium, in *a* vero per tonum et in *G* simili modo per tonum, ob quod *sol fa mi re ut*, si bene perpendas, quartam tibi generat in eodem loco diapente descendendo speciem. ⁹⁵Quid nunc restat obsecro videre quod non sit in hoc cantu visum, nisi forsitan quod *a* sequens acutum et *a* sive *re* et idem *la* sicut et in fine *D* *D* vel *re re* faciunt unisonum? ⁹⁶Quotiens enim duas sicut hic aut plures in una linea vel spatio litteras aut notas aut syllabas habemus, totiens utique voces quae sub illis latitant aequali prolatione dirigimus.

94. in om A

⁹⁴After this, the melody descends by a whole tone from the high *d* to *c*, and then through a minor semitone to square *b* ; a distance of a tone leads it to the note *a*, then likewise to *G* also by a tone. Because of this progression, if you examine the matter carefully, the descending series *sol fa mi re ut* gives you in the same place the fourth species of diapente. ⁹⁵I ask you, what else is there to notice which is not present for us to see in this melody, unless perhaps the fact that the following high *a*, or *re*, and its neighbour *a*, or *la*, form a unison, just as *D D*, or *re re*, do at the end? ⁹⁶For whenever we have, as we have here, two or more letters, notes or syllables on the same line or in the same space, then on these occasions we arrange the pitches which are hidden beneath them to have the same sound.

[V]

¹Cur pauci vel nulli cantorum sciunt componere planum cantum.

²His expletis quae ad veram simplicemque divini cantus pertinere probantur notitiam, iuste lector quaerere potest unde procedat hoc, ut nec parvam quidem antiphonam cuius virtutis sit discernere sciant, aut si fuerit opus novam componere pauci vel nulli cantores nostri temporis. ³Cui respondebo protinus quoniam et vim vocum quam hic descripsimus non intelligunt, et totis vanitatibus dediti dulces et angelicos modulos aure mentis non capiunt. ⁴Sicut enim rhetores necesse est post artem et ante non paucos antiquorum quos imitari valeant ac eruditorum perlegisse libros, sic et tu, cantor, volens angelicum verbis sacris apponere cantum, te quidem oportet libros divinos canendo diu per ecclesias frequentasse, neque tamen ea quae de generibus melorum, de speciebus consonantiarum, modis tropis sive tonis parumper ante religiosis ac pauperibus, clericis describimus ignorare. ⁵Verum quia vos magis delectat, o cantores mei, vulgo quam Deo vestro canere, vos inquam vanitas illo permittente seducit et ligat et inebriat cum vestris vanis cantibus, nam ingenium ibi valet ubi mens intendit; et nemo duobus dominis teste Deo bene servivit unquam. ⁶Vis itaque de facili per planum cantum antiphonas, responsoria, hymnos ac similia posse nova per dies ac devotissima cudere?

1. A 51v H 65r
2. probatur A probantur *in marg* H
cuis *pro* cuius A
4. (melorum) et *add* A
5. bene *in marg* H *om* A
servit *pro* servivit A
6. per dies *om* A
7. debita A
totis *in marg* H

[V]

¹Why few, or even no singers, know how to compose plainsong.

²Now that I have explained these topics which are seen to have to do with the true and simple knowledge of sacred chant, the reader can justifiably ask why few, or even none of the singers of our own time know how to judge the merit of even the shortest antiphon, or, if necessary, to compose a new one. ³To him my response will immediately be that they do not understand the true significance of the pitches I have here described, and that in their total commitment to falsities they do not take in with their inner ear the sweet and heavenly melodies. ⁴For just as rhetoricians, both before and after practising their skills, need to study several books written by the learned men of old, which they can then take as models, so you, dear singer, if you wish to set a heavenly melody to the sacred words, need frequently to have familiarised yourself with the sacred books by singing from them in church over a long time. Also, you must not overlook the topics I have been describing a little earlier for the saintly poor clerics—that is, the melodic genera, the species of consonance, and the modes, tones or tropes.³⁵ ⁵But because it gives you, my dear singers, greater pleasure to sing to the vulgar throng rather than to your God, I tell you that vanity, by the will of God, beguiles, binds and makes you drunk with these inane songs of yours; for talent flourishes where the mind directs it, and on God's own testimony no man has ever satisfactorily served two masters.³⁶ ⁶Do you wish then daily to be able to compose, in plainchant, antiphons, responsories, hymns and other similar original and very devotional material?

³⁵The species of consonance appear in *Pars prima* 3.8, and Johannes' description of the 'modes tones or tropes' in *Ibid.* 3.9.

³⁶Cf *Sec. Matt.* 6,24: *Nemo potest duobus dominis servire.*

⁷Da debitas unicuique tropo tono sive modo suas, ut ante docui, species, atque stilum ecclesiasticum totis imitare viribus sacris semper suppositis verbis, non aliter quam imitari soles stultos in suis exercendis cantilenis cantores subiectis ut plurimum verbis meretriciis.

⁸In malivolam etenim animam introire nequit quod pertineat ad sapientiam.

⁹Hoc autem leviter agere poteris, si tractatum de puris litteris quem huic ex industria, sicut iam testatus sum, praeposui legeris ac intellexeris, in quo nempe tracto satis breviter et aperte de omnibus, quae pertinent ad Dei laudem exercendam in ecclesiis.

¹⁰Ita tamen quod si te per *ut re mi fa sol la* canere delectet quicquid demonstrent litterae per tonum sive semitonium, sit tibi semper *ut re mi* vel *ut mi*, et *fa sol la* vel *fa la* tam ascendendo quam descendendo ditonus, *re mi fa* vero vel *re fa*, et *mi fa sol* vel *mi sol* semiditonus.

¹¹*Re mi fa sol* autem vel *re mi sol* vel *re fa sol* vel *re sol* prima sit diatessaron species, *mi fa sol la* vel *mi fa la* vel *mi sol la* vel *mi la* secunda, *ut re mi fa* vel *ut re fa* vel *ut mi fa*, vel *ut fa* tertia.

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7. debita A
totis *in marg* H
9. poteritis A
apte *pro* aperte A
10. delectat A

⁷Assign the proper species, according to my previous instruction, to each trope, tone or mode; copy the ecclesiastical style with all your strength by always placing sacred words underneath, in the same way as you are used to copying the singers in their folly in the performance of their songs, usually with indecent words placed underneath.

⁸For that which has to do with wisdom cannot enter into a mind which is bent on evil. ⁹This you will easily be able to carry out as long as you read and understand the treatise dealing with the pure letters which I have purposely, as I told you, set out before this one. In this I deal quite succinctly and clearly with everything that has to do with the enactment of God's praise within the churches.

¹⁰Even so, if it please you to sing by using *ut re mi fa sol la*, whatever the letters indicate regarding the whole tone and the semitone, you must always regard *ut re mi*, or *ut mi*, and *fa sol la* or *fa la*, both ascending and descending, as ditones; but *re mi fa* or *re fa*, and *mi fa sol*, or *mi sol* as semiditones.

¹¹*Re mi fa sol*, or *re mi sol*, or *re fa sol*, or *re sol*—these are to form the first species of diatessaron; *mi fa sol la*, or *mi fa la*, or *mi sol la*, or *mi la*—these are to form the second species; *ut re mi fa*, or *ut re fa*, or *ut mi fa*, or *ut fa*—these are to form the third diatessaron species.

¹²*Re mi fa sol la* vero vel *re mi la* vel *re fa la* vel *re sol la* vel *re la* prima sit diapente species, *mi fa sol re mi* vel *mi fa mi* vel *mi sol mi* vel *mi re mi* vel *mi mi* secunda, *fa sol re mi fa* vel *fa sol la* vel *fa re fa* vel *fa mi fa* vel *fa fa* tertia, *ut re mi fa sol* vel *ut re sol* vel *ut mi sol* vel *ut fa sol* vel *ut sol* quarta varietas ac differentia.

¹³EXPLICIT LIBER SECUNDUS SECUNDAE PARTIS DE SYLLABIS UT RE MI FA SOL LA.

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12. vero *om* A
 prima species sit diapente A
 variatas A
 13. SECUNDAE *om* A
 DE *om* A
 SYLLABIS *supra lin* H

¹²*Re mi fa sol la*, or *re mi la*, or *re fa la*, or *re sol la*, or *re la* –these are to form the first diapente species; *mi fa sol re mi*, or *mi fa mi*, or *mi sol mi*, or *mi re mi*, or *mi mi* –are to form the second species; *fa sol re mi fa*, or *fa sol la*, or *fa re fa*, or *fa mi fa*, or *fa fa*, the third species; *ut re mi fa sol*, or *ut re sol*, or *ut mi sol*, or *ut fa sol*, or *ut sol* –these are to form the fourth variety or species of diapente.

¹³THE END OF THE SECOND BOOK OF THE SECOND PART, WHICH DEALT WITH THE SYLLABLES UT RE MI FA SOL LA.

¹INCIPIT LIBRI TERTII DE CONTRAPUNCTO PRAEFATIUNCULA.

²Libet post editum de divino cantu, quod pauperi clero sponte devoveram, opusculum, apertaue via brevi ad canendum et canere docendum, tam per meras sive puras litteras quam per sex illas syllabas *ut re mi fa sol la*, de commixtis etiam vocibus, quod vulgo contrapunctum nominant, absconditum, ut ita dicam, a nostris temporibus naturae quoddam revelare secretum. ³Non ad pompam, o dilectissimi, non ad pompam testor Deum nec ad vanam quae nemini prodest lasciviam, sed magis ad roboranda Deo canere discentium ingenia, et ad mira, sicut dixi, naturae rimari secreta, tam in ipsis sonis simplicibus quam et commixtis vocibus plurimos excitandum. ⁴David enim, ut legimus, si saltando, quod signum levitatis est, Deo placuit non propter saltum utique sed propter affectum, quanto magis illi canendo placere poterimus non nimis lascive tamen ac omni cum puritate chordis quoquomodo sobrie sibi gratias pro beneficiis referendo? ⁵Sunt namque de vobis nonnulli qui nil aliud quam lascivas illas cantilenas, de cantu sicut aiunt figurato, nilve praeter vanam vocis fractionem appetunt, spretoque penitus cantu divino, quem sobria mater instituit ecclesia, toto vitae suae cursu quidem circa longas breves aut caeteras huiusmodi nullius industriae laudabilis figuras delirare non cessant. ⁶Atque utinam et illa totis viribus colerent dummodo cuius virtutis sit minima, quam nostri composuere sancti per planum cantum, antiphona non

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1. A 52r H 65v
LIBER *pro* LIBRI A
 2. aptaque A
illas sex A
absconditum A
 3. magis *om* A
discentium Deo canere A
ingenia A
rimari *in marg* H
excitandum *in marg* H
 4. propter *om* A
 5. propter *pro* praeter A
 6. et illa *om* A

¹THE SHORT PREFACE TO THE THIRD BOOK, WHICH DEALS WITH COUNTERPOINT.

²Now that I have produced the short treatise on the divine chant which I had dedicated of my own accord to the poor cleric, and opened up a short route to singing, and to the teaching of singing, through the bare and simple letters, as well as through the syllables *ut re mi fa sol la*, it gives me pleasure to reveal a particular secret of nature which has been kept hidden, so to say, from men of our own times. This is to do with the intermingling of voices, a process which is commonly called counterpoint. ³But my dearest ones, it is not for pomp, as God is my witness, it is not for pomp nor for empty wantonness which benefits nobody that I do this, but rather that the minds be strengthened of those who are learning to praise God in song, and also to encourage many people to unfold, as I have said, the wonderful secrets of nature—not only in the simple, individual sounds, but also in the combination of pitches. ⁴David, as we read, through his dancing—which is a mark of frivolity—gave pleasure to God, not particularly by the dancing but by his love.¹ Then so much the more will we be able to please him with our singing, and by offering him thanks for all his benefits to us, not in an excessively wanton fashion, with a total purity of heart and a sober mind. ⁵For there are some amongst you who aim for nothing other than those wanton ditties, figurative song as they call it, and silly diminutions of pitch; they utterly despise the sacred chant instituted by Mother Church in her prudence; throughout their entire lives they never cease to rave about the longs, the shorts, and other figures of this kind which do not serve any worthy purpose. ⁶Oh! How I wish they would cultivate even these enthusiasms with all their hearts and minds—as long as they did not remain ignorant of the merit of the briefest antiphon composed by our saints in the plainsong style.

¹2 *Reg.* 6,14: et David saltabat viribus ante Dominum.

ignorarent. ⁷Cui, precor, cui tales assimilari merentur? ⁸Solis procul dubio tibicinibus, nam et priscorum ignari mutavere vocabula philosophorum appellando ditonum tertiam, diatessaron quartam, et diapente quintam, sicque de reliquis vocum mixtionibus consonantiis ac dissonantiis, quas hic infallanter propriis efferro nominibus. ⁹De vanis etenim vocum fractionibus, quod ab infantia novi, minime, cum non sim tibicen, curo, nec tertiam quartam quintam, sicque de caeteris, hic audire volo.

8. tertiam ditonum quartam diatessaron A
 (quartam) diatessaron (et diapente) *dele* H
 consonantiis *om* A

⁷To whom—I ask you—to whom do such people deserve to be compared?

⁸Undoubtedly, they can be compared only to shawm players,² for in their ignorance they have changed the vocabulary of the ancient philosophers by calling the ditone the third, the diatessaron the fourth, the diapente the fifth, and so on for the rest of the pitch combinations, the consonances, and the dissonances; but I reproduce them here correctly with their proper terms.³ ⁹As for the ridiculous diminutions of note value, I have known these since infancy, and I have not the least interest in them since I am not a shawm player. Neither do I want to hear terms like 'the third', 'the fourth', and 'the fifth' and so on mentioned in this context.

²See above *Pars secunda* 2.1.11

³For reference to the ditone as 'a third' etc. see Prosdocimus *Tractatus* in CS 3 p. 195. and Ugolino *Declaratio* p. 30.

[I]

¹Quid sit planus cantus, quid commixtio vocum sive contrapunctum, quidve fractio vocis aut cantus figuratus.

²Igitur aliud est Deo sive mundo voce simplici tamque gravi quam acuta vel, ut ita loquar, per se resonando nec consonando canere, et aliud voces acutas quibusvis gravibus varias procreando consonantias opponere. ³Nulla enim est inter simplicem ecclesiae cantum et commixtas voces sive contrapunctum differentia, nisi quod ibi multi canunt unum et idem, hic vero quidam in gravibus vocibus, et quidam in acutis aut superacutis diversa tonantes, nulla nihilominus se vocum discordia conturbant. ⁴Quid ergo commixtae voces aut quid contrapunctum? ⁵Certe nil aliud quam cantus simplex duplicatus aut triplicatus, et sic in infinitum, cumque nihil sit aliud illa vana fractio vocis, quam mensuratum cantum vocant atque figuratum, nisi commixtae voces aut contrapunctum, nulla prorsus erit in utroque distantia nisi maximarum, longarum, brevium ac huiuscemodi quinque vel sex ad plus figurarum varia mensura.

⁶Quid est ergo fractio vocis aut mensuratus, ut aiunt, et figuratus cantus? ⁷Grandis quidem de contrapuncti gravitate facta quaedam levitas. ⁸Tolle quaeso per se contrapunctum aut etiam mensuratum et figuratum cantum, quid est nisi planus et simplex cantus? ⁹Iterumque de mensurato cantu variae figurae cum mensuris

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1. A 52v H 66r
 2. modo *pro* mundo A
nec consonando *om* A
 3. vocum se A
 4. quid² *om* A
contrapunctus A
 5. nil *pro* nihil A
alia *pro* varia A
 9. (variae) mensurae (figurae) *dele* A

[I]

¹The nature of plainsong, of the 'intermingling of voices' or 'counterpoint', and of the 'diminution of pitch value' or 'figurative melody'.

²Thus it is one thing to sing to God or to humankind by means of a simple vocal line, whether it be high or low, or, if I may speak in this way, by sounding alone and not together. It is quite another matter to set high pitches against low ones, creating different consonances. ³There is no difference between simple ecclesiastical chant and music with intermingling parts—or counterpoint—apart from the fact that in the former many sing one and the same part, while in the latter, different parts are sung; some will sing in the low register, while others will give out in the high or very high registers. Despite this, they do not upset each other by any clashes in pitch. ⁴What then are 'intermingling voices' or 'counterpoint'? ⁵These terms can only mean that a single vocal line is doubled or tripled, and so on to infinity, and since the 'diminution of note-value'—which is a dreadfully inane way of singing—which is called 'measured and figurative melody', involves nothing more than 'intermingling voices' or 'counterpoint', clearly the only difference between them will be the varying measure of the very long, the long, the short, and the five or six—at the most—figures of this kind.

⁶What then is 'diminution of note-value', or as they say, 'measured and figurative melody'? ⁷It is a great flippancy made out of the serious business of counterpoint. ⁸I ask you, take away counterpoint, or even measured and figurative melody in itself, and what is there but simple plainsong? ⁹Again, when the different notational signs, with their durations, are removed from

amoveantur, quid est ultra simplex atque purum contrapunctum? Nihil plane.

¹⁰Cernis ergo quod si solum simplicem cantum, quem supra docuimus, eleganter intellegas, totum faciliter habes, et sicut qui cantum figuratum aut mensuratum sine contrapuncto didicit in tenebris ambulat, ita si contrapunctum absque simplici vel plano cantu sapias.

¹¹Haec ideo praemiserim ostendere volens quod qui cantum ecclesiasticum amore Dei perfecte discunt ac intelligunt optime faciunt, et eis sufficit, quamquam et si contrapunctum, quod sine tali cantu non est, habuerint, plurimum illis ad confirmandam modulandi formam prodesse soleat. ¹²Fractio tamen vocis, nisi sit valde gravis et sobria, quid nobis conferre valet in ecclesiis praeter lasciviam et peccatum? ¹³Quam siquidem idiotae viri discere queunt et mechanici suavius quam quae videntur in re magistri saepe concinunt; quod de vera vocum intelligentia non dicam, praeclara namque tantum ingenia prorsus ad illam attingunt.

9. est *om* A
 11. eis *pro* illis A
 12. conferre valet nobis A
 propter *pro* praeter A

measured melody, what is there other than pure simple counterpoint?

Absolutely nothing.

¹⁰You realize therefore that if you understand with some perception only the simple chant which we have taught above, then you have grasped the whole subject; and just as he who has learnt measured or figurative melody without a study of counterpoint walks in the dark, so it is with you, if you understand counterpoint while divorcing it from simple plainsong.

¹¹I venture to make these preliminary observations therefore because of my wish to show that those who through love of God learn and understand ecclesiastical chant perfectly do very well indeed, and that this is enough for their needs, though if they have gained a knowledge of counterpoint, which does not exist without such chant, it is usually of very great help to them in establishing the structure of a melody. ¹²However, the diminution of note-value brings us in the churches nothing but wantonness and sin, if it is not sufficiently serious and of sober content. ¹³For ignorant persons can learn it, and rude mechanicals often sing what seems relevant more sweetly than teachers; I would not say this of a true understanding of pitches, for only outstanding minds really attain to that.

[III]

¹De solis perfectis consonantiis ac dissonantiis compassibilibus ad voces commiscendas omnino necessariis.

²In libello quem nuper de vetusta philosophorum huius artis practica descripsimus, sacra quidem attestante pagina, Jubal primo cecinisse probatur ante diluvium, ac in prima praefati libelli figura quicquid a natura canendo proferre potuit ille monstratum est. ³Quod profecto non absurde replicatum hic breviter existimo, sed satis ad propositum ac valde necessarium. ⁴Potuit namque modulari dictus Jubal discedens ab unisono, sicut et nos sui sequaces, tonum aut semitonium, ditonum aut semiditonum, tritonum aut diatessaron, diapente perfectum aut etiam imperfectum, tonum cum diapente vel semitonium, ditonum cum diapente vel semiditonum, diapason perfectum et etiam non perfectum sicque de relictis, cum eodem diapason compositis ac etiam necessariis, de quibus est infra cito per singula disserendum.

⁵Diapente et diapason simplices ac perfectae consonantiae:
Ex quibus omnibus utique non tam homo quam ipsa natura duas tantummodo perfectas ad inchoandum omnem melodiam atque finiendum discrevit primas ac simplices diapente et diapason consonantias, quarum prima quinque voces habere debet, tres tonos integros ac unum minus semitonium, secunda vero voces octo quinque tonos et duo minora semitonia.

1. A 53r H 67r
2. praefacti *pro* praefati A
3. sed *om* A
4. vos *pro* nos A
per singula *in marg* H per singula cito A
5. Diapente.....consonantiae *in marg* HA

[II]

¹Concerning the only perfect consonances, and also the compatible dissonances which are absolutely necessary for the intermingling of parts.

²In the book which I recently wrote about the ancient practice of this art by the philosophers, the sacred page bearing witness, Jubal is shown as the first to have sung before the Flood, and in the first diagram in the said book was demonstrated what he was able to produce from nature in singing.⁴ ³I certainly do not think it a waste of time to reproduce this here briefly, but very much to our purpose, and also very necessary. ⁴For the said Jubal, just like us his successors, was able to sing a melodic line by distinguishing from the unison the tone and the semitone, the ditone and the semiditone, the tritone and the diatessaron, the perfect and imperfect diapente, the diapente plus tone or semitone, the diapente plus ditone or semiditone, the perfect and the imperfect diapason and so on, with the other intervals which are compounds of the same diapason, and even necessary. I must discuss these intervals speedily and individually below.

⁵The diapente and the diapason—the simple and perfect consonances:

Out of all these intervals, certainly not just men, but Nature herself has distinguished only two prime simple consonances for beginning and ending every melody –and these are the diapente and the diapason. Of these, the first should have five pitches—three whole tones and a minor semitone; the second should contain eight pitches—five whole tones and two minor semitones.

⁴See above *Pars prima* 1.1.6.

⁶Nam etsi diatessaron prima sit, ut saepe docui, trium perfectarum et simplicium consonantiarum, nihilominus in hac de qua tractare volo commixtione vocum sive contrapuncto simplici non recipitur, eo primum quod ab aequalitate diapason nimis remota, non solum cito discordet, sed et cum illa composita dissonantiam horribilem generet, nullamque compassibilem quae tendat ad se per tonum et minus semitonium dissonantiam habeat.

⁷Diapason diapente composita:

Simplex etenim diapente cum simplici diapason componitur, et sit diapason diapente compositum, duodecim, utputa, voces habens, octoque tonos integros atque tria minora semitonia.

⁸Bisdiapason composita:

Porro diapason in eadem specie duplicatur, et sit bisdiapason etiam compositum, quindecim utique voces habens decemque tonos integros et quatuor minora semitonia, si bene numerentur.

⁹Bisdiapason diapente:

Iterumque bisdiapason cum simplici diapente componi solet, fitque bisdiapason diapente similiter compositum, decem et novem voces habens infallanter, et tonos integros tresdecim cum quinque minoribus semitoniis, si res aequa lance pensetur.

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- 6. minus *in marg* H
 - 7. Diapason diapente composita *in marg* HA
 - 8. Bisdiapason composita *in marg* HA
 - 9. Bisdiapason diapente *in marg* H *om* A
(bisdiapason) cum (diapente) *add* A
et om A
tredecim *pro* tresdecim A

⁶Now even though the diatessaron, as I have pointed out so often, is the first of the three perfect and simple consonances, nevertheless, it is not accepted within the mixed voice texture, or simple counterpoint, with which I would like to deal. This is because, first, being too far removed from the equality of the diapason, not only does it quickly produce a dissonance, but even when it is compounded with the diapason, it generates a dreadful dissonance. Neither does it accommodate any compatible dissonance which might move towards it through a whole tone and a minor semitone.

⁷The compound interval of the diapason diapente:

The simple diapente is combined with the simple diapason, and may become the compound interval called the diapason diapente; that is, it contains twelve pitches, eight whole tones and three minor semitones.

⁸The compound interval of the bisdiapason:

Yet again, when the diapason is doubled in the same species, it becomes the compound interval called the bisdiapason; it contains fifteen pitches, ten whole tones and four minor semitones, if they are counted carefully.

⁹The bisdiapason diapente:

Furthermore, the bisdiapason is compounded with the simple diapente, and in the same way becomes the bisdiapason diapente; it invariably accommodates nineteen pitches, thirteen whole tones and five minor semitones, if one weighs the matter impartially.

¹⁰Has profecto quinque perfectas ad inchoandum, ut dixi, melodias atque terminandum in manu Guidonis Aretini facimus, si volumus, consonantias, quarum duae sunt simplices, et aliae compositae, sicut infra patebit per exemplum.

¹¹Quamquam et infinita sit huiuscemodi perfectarum consonantiarum compositio, si non ei finem posuerit, ut hic, vocis humanae fragilitas, ac certa quaedam fidium seu chordarum dimensio.

¹²Dissonantiae compassibiles:

Ipsa igitur eadem natura, quae tantam operante Deo nobis insinuat sonis et vocibus inesse virtutem, duas denuo prodit in omni perfecta consonantia simplici vel composita non dicam consonantias, sed quasdam potius consonantiarum partes, quae talem habent cum perfectis a quibus continentur, et in quibus ortae sunt etiam consonantiis affinitatem, ut nunquam ab illis nisi per tonum et minus semitonium, vel quando plus per duos tonos integros distare valeant. ¹³Sed etsi quando separatae fuerint a suis perfectis, naturali quodam instinctu semper ad illas anhelant quandam videlicet imperfectam inter gravem et acutum sonum retinentes concordiam, donec ad suas perfectas per tonum etiam et semitonium, aut per tonum ad plus et tonum redeant, a quibus non aliter, ut dictum est, distare valuerant.

¹⁴Verbi gratia: ubicunque diapente perfectum habes, in illo protinus aut ditonum a sua perfecta per tonum ac minus semitonium distantem reperis, aut vere semiditonum uno tono superius et altero inferius ab illa remotum, non enim in uno diapente sic simul cadere valent.

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10. si *om* A
 12. Dissonantiae compassibiles *in marg* HA
 virtutum *pro* virtutem A
 14. minus *in marg* H
 nam *pro* non A

¹⁰These five consonances, perfect for beginning and ending melodies, as I have said, we can construct, if we wish, on the hand of Guido of Arezzo. Of these, two are simple consonances, and the others are compound, as will be made clear below in the example. ¹¹However, this kind of combining of perfect consonances could be infinite, had not the physical restrictions of the human voice placed a limit on it, as here, together with the finite size of the instruments and their strings.

¹²Compatible dissonances:⁵

Nature herself therefore, who, by the action of God, shows us that such great power is inherent in the sounds and pitches in every perfect consonance—whether it be simple or compound—provides two phenomena which I would not call consonances; rather are they segments of consonances, which have such an affinity with the perfect consonances which accommodate them, and in which they come into being, that they can never diverge from them by more than a tone and a minor semitone, or, at the most, by two whole tones. ¹³But even if ever they have been separated out from the perfect ones they go with, by some kind of natural instinct they always aspire to them, while at the same time still preserving an imperfect concord between the low pitch and the high, until they resolve onto their perfect consonances through a tone and a semitone, or through two whole tones at the most, which, as I have said, is the only distance they can maintain from the perfect consonances. ¹⁴For example: whenever you have a perfect diapente, you constantly find in it either a ditone, distant from its perfect interval by a tone and a minor semitone, or indeed a semiditone, distant from it by a tone above and another one below it, for these two features cannot occur simultaneously within a single diapente.

⁵For the 'compatibility' of dissonances, see eg Marchetto *Lucidarium* 5.2.7: Harum autem dyaphoniarum seu dissonantiarum alie compatiuntur secundum auditum et rationem et alie non.

¹⁵Hae sunt a plerisque non sine causa dictae dissonantiae compassibiles, hoc est supportabiles, eo quippe quae nec in totum dissonent, nec propriam perfectarum consonantiarum naturam habeant. ¹⁶Quae binae semper et binae procedunt, ut supra legitur, aequales nimirum in vocibus, sed prolatione multum differentes.

¹⁷Duae primae dissonantiae compassibiles:

Ditonus etenim ac semiditonus primae sunt dissonantiae compassibiles, sed ditonus, cum ex duplicato tono sit compositus, per ascensum unius toni et descensus minori semitonii, vel e converso, perfectam implet diapente consonantiam, quod semiditonus, etsi trium sit etiam vocum, implere nequit; est namque tantum ex tono minorique semitono factus. ¹⁸Ob quod necesse est ut minor semiditonus ditono maiori coaequetur, fiatque totus illi per diesin similis, addendo sibi maius, quod est apothome, semitonium, diviso tono sequenti sursum.

¹⁹Quid sit diesis in contrapuncto:

Est autem hic diesis quaedam toni duabus in partibus sectio, per quam huiusmodi prolatione minoribus dissonantiis apothome, quod maior pars est toni, desuper adiungitur, quod siquidem totiens fieri debet quotiens ubicumque tales dissonantias ad suam perfectionem per tonum superius ac tonum inferius ire sentitur. ²⁰Sed id lector melius capies in his quae sequuntur exemplis; tibi nunc sapere satis est quod in omni vero diapente ditonum ac semiditonum habeas.

15. consonantiae *pro* dissonantiae A

17. Duae primae consonantiae compassibiles *in marg* H om A
Ditonus A

19. Quid sit diesis in contrapuncto *in marg* H om A

¹⁵Many people, not without reason, refer to these as compatible or supportable dissonances, on the grounds that they are not entirely dissonant, but, on the other hand, do not possess the proper natural qualities of the perfect consonances. ¹⁶As you read above, they progress by two and two, equal in their number of pitches, but very different in the way they sound.

¹⁷The two prime compatible dissonances:

The ditone and the semiditone are the two prime compatible dissonances, but the ditone, since it is made up of two whole tones, makes up the perfect consonance of the diapente if it is extended upwards by a whole tone and downwards by a minor semitone, or vice versa.* This the semiditone cannot achieve, even though it also is made up of three pitches, for its constituents are merely a tone and a minor semitone. ¹⁸For this reason, the smaller semiditone should be equated with the larger ditone and be made wholly like it through the diesis, adding to itself the major semitone, that is, the apothome, with the following tone above being divided.

¹⁹What the diesis is in counterpoint:

In this context the diesis is a particular division of the whole tone into two parts.⁶ Through this, by an extension of this sort, the apothome, the larger part of the whole tone, is added on above to the smaller dissonances. This should happen whenever it is felt that such dissonances are moving towards their own perfection by the addition of a whole tone above or below. ²⁰But, my dear reader, you will be able to grasp this fact much better in the examples to be given later; for the moment, it is sufficient for you to know that in every diapente is contained a ditone and a semiditone.

⁶For Tinctoris' observations on 'diesis', see *Term. mus. diff.*: Diesis secundum aliquos idem est quod semitonium minus, secundum alios ipsius semitonii minoris dimidium. Nonnulli vero diesim esse volunt quintam partem toni, alii tertiam quartam et octavam. (BBR 11.4147, f.119v). For Boethius' definition, see above Note *Pars prima* 3.2.12.

²¹Qui sicut et omnes aliae dissonantiae per tonum ac minus semitonium ad suae matris quonammodo sinum redeunt, ita quod semiditonus per diesin, cuius haec est nota #, ditonus fiat integer quemadmodum et omnes non integrae sui generis ac sibi similes. ²²Sicut enim ad diapente ditonus redit, ita quidem caeterae sibi similes ac integrae dissonantiae ad perfectas suas consonantias redire debent, et sicut non integer semiditonus, sic et omnes aliae non integrae dissonantiae priusquam ad matrem redeant, necesse est ut per diesin illam similes integris fiant.

²³Integras equidem omnes quae sicut ditonus ex integro tono compositae sunt appello, sicut e contra non integras quae veluti semiditonus a minori procedunt semitonio.

²⁴Dissonantiae compassibiles secundae:

Nam et diapason duas etiam habet in se dissonantias compassibiles, quarum prima de tono cum diapente composito facta tonus cum diapente dicitur, et est integra, sex utique voces habens et quatuor cum uno minori semitonio tonos. ²⁵Altera vero non integra semitonium cum diapente vocitari solet, sex et ipsa voces absque dubio continens, sed non nisi tres tonos ac duo minora semitonia ex se proferre valens.

²⁶Per diesin tamen, ut dictum est, integra fieri potest et debet.

²⁷Tertiae compassibiles:

Duas necnon diapason diapente consonantia possidet huiuscemodi dissonantias, quarum prior ac integrior, ex ditono diapason composito generata, ditonus cum diapason congrue satis est appellata, decem voces semper habens,

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21. # nota A
 22. Sicut enim..... caeterae sibi *om* A
 24. Dissonantiae compassibiles secundae *in marg* HA
 25. minora *om* A
 27. Tertiae compassibiles *in marg* HA
 minoris *pro* minoribus A

²¹Just as these and all the other dissonances, by means of the tone and the minor semitone, return to their mother's bosom in some way or other, so the semiditone must become a complete ditone by means of the diesis, the sign for which is #. The same applies to all the other incomplete dissonances of the same kind which are similar to them. ²²Just as the ditone moves towards the consonance of the diapente, in the same way, the other similar and complete dissonances should attain to their own perfect consonances. In addition, just like the incomplete semiditone, so all the other incomplete dissonances should, before they return to their mother's bosom, become equated with the complete dissonances through the diesis.

²³In fact, all those dissonances which, like the ditone, are made up from the whole tone, I call complete, and conversely, I call incomplete those which, like the semiditone, are made up from the minor semitone.

²⁴The second compatible dissonances:

The diapason also contains within itself two compatible dissonances; of these, the first is called the tone with diapente because it is made up from the addition of the tone onto the diapente. It is a complete dissonance; it has six pitches, and contains four whole tones and a minor semitone. ²⁵The second dissonance however is not complete, and is normally called the semitone with diapente; it also clearly has six pitches, but can only produce three tones and two minor semitones. ²⁶However, as I have said, it can and should be made complete by means of the diesis.

²⁷The third compatible dissonances:

Furthermore, the consonance of the diapason diapente contains two dissonances of this kind. Of these, the first, and the more complete, is sprung from a combination of the diapason and the ditone, and is aptly and appropriately called the ditone with diapason. It always contains ten pitches, and

ac in prolatione nusquam minus septem tonis et duobus minoribus semitoniis constans. ²⁸Sequens autem non integra semiditonus cum diapason est non incongrue dicta, cum par sit illi quidem in vocibus, sed nisi crescat per diesin a prolatione sui valde remota.

²⁹Quartae compassibiles:

Bisdiapason etiam duas in se continet istius modi compassibiles dissonantias, tonum cum diapason diapente scilicet quae voces tresdecim habet, ac tonos novem cum tribus minoribus semitoniis tamquam integrior concludit, et semitonium cum diapason diapente quae totidem habet voces, sed cum sit non integra nisi diesis accedat, quatuor minora semitonia cum octo tonis integris possidet.

³⁰Quintae compassibiles:

Bisdiapason diapente duas similiter intra se foveat tales dissonantias, unam integram utputa decem et septem vocum, sed duodecim cum quatuor minoribus semitoniis tonorum, quam recte nuncupamus ditonum cum bisdiapason ad similitudinem praecedentium, alteram quoque non integram semiditonum cum bisdiapason merito dictam, eo quippe quae easdem voces habeat, sed uno minor est in prolatione maiori semitonio nisi diesis de medio fiat.

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29. Quartae compassibiles *in marg* HA
concludit A
30. Quintae compassibiles *in marg* HA
non cupamus *pro* nuncupamus A
Vero *pro* quoque A

its range is nowhere made up of less than seven whole tones and two minor semitones. ²⁸The following dissonance however is quite rightly referred to as incomplete—this is the semiditone with diapason; although it equals its predecessor in the number of pitches it contains, it remains very much at a distance from the sound of the former unless it is increased by the use of the diesis.

²⁹The fourth compatible dissonances:

The bisdiapason also contains within itself two such compatible dissonances—the tone with diapason diapente which contains thirteen pitches and accommodates nine whole tones and three minor semitones. This is the more complete of the two. The other dissonance is the semitone with diapason diapente, which has just as many pitches, but since it is not complete unless the diesis is added, it contains eight whole tones and four minor semitones.

³⁰The fifth compatible dissonances:

Similarly, the bisdiapason diapente sustains two such dissonances within it. One of these is complete—that is, it contains seventeen pitches, twelve whole tones with four minor semitones. We rightly call this the ditone with bisdiapason after the manner of the preceding ones. The other is with justification referred to as incomplete: this is the semiditone with bisdiapason. It is incomplete because, although it has the same number of pitches, it is smaller by one semitone than the range of the larger interval unless the diesis is involved.

[III]

¹Omne quod fieri potest de supradictis omnibus per singulas litteras voces ac syllabas, tam graves quam acutas et superacutas, in manu Guidonis.

²Viso superius quid sit vocum admixtio sive contrapunctum, quotque sint perfectae consonantiae ad inchoandum melodias seu finiendum, et quot dissonantiae compassibiles ad mediandum cum opus fuerit, variave concinendo peragendum, multis quippe fore gratum arbitror si quicquid in singulis litteris vocibus aut syllabis, tam gravibus quam acutis et superacutis, est consonum explicem, quantum se videlicet ordo vocum extendit in manu Guidonis quam supra depinximus. ³Et quidem necesse est, ac debitum, ut qui dulces simul cupis admiscere canendo sonos omne quod consonat in primo diapason aut dissonat, per singulas litteras habeas impromptum. ⁴Quis oro negare audeat id quod in uno diapason reddit consonantiam nullatenus in eadem specie generare posse discordiam usque in infinitum? ⁵Has ergo quinque pulcherrimas replicemus parumper consonantias perfectas, cum decem illis suis famulabus, ut ita dicam, et pedissequis quas non ab re dissonantias compassibiles appellavimus.

⁶Quinque perfectae consonantiae:

Diapente prima perfecta consonantia, diapason secunda, diapason diapente tertia, bisdiapason quarta, bisdiapason diapente quinta.

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1. A 54r H 68v
supraditis A
 2. depinximus *scripsi* depiximus H descripsimus *pro* depiximus A
 3. per singulas litteras *in marg* H
 4. usque *om* A
 5. consonantias *pro* dissonantias A
 6. Quinque perfectae consonantiae *in marg* HA

[III]

¹Everything which can take place arising from all of the above, through the individual letters, the pitches and the syllables on the Guidonian Hand, whether they be low, high or very high.

²We have seen above what is meant by counterpoint or the 'intermingling of voices', how many perfect consonances there are for beginning and ending melodies, and how many compatible dissonances for the mediations whenever they are needed, or for the final resolutions using different combinations.

Therefore I think that many people would be grateful if I explained what is harmonically acceptable in the single letters, the pitches and the syllables in the low, high and highest registers, namely, how far the order of pitches extends on the Guidonian Hand which we have described above. ³Now you must— and it is your duty to do so since you are anxious to combine sweet sounds in your singing—you must have readily available through the single letters everything which is consonant or dissonant in the first diapason. ⁴Who would dare, pray, deny that what produces a consonance in one diapason can in no way produce a dissonance in the same diapason species to infinity? ⁵Therefore, let us quickly go over again these five most beautiful and perfect consonances together with their ten close attendants and footmen, so to speak, which we, not inaptly, have called compatible dissonances.

⁶The five perfect consonances:

The diapente is the first perfect consonance, the diapason the second, the diapason diapente the third, the bisdiapason the fourth, and the bisdiapason diapente the fifth.

⁷Decem illarum compassibiles dissonantiae:

Ditonus ac semiditonus primae dissonantiae compassibiles in diapente, tonus cum diapente, et semitonium cum diapente intra diapason secundae, ditonus cum diapason et semiditonus cum diapason tertiae, tonus cum diapason diapente et semitonium cum diapason diapente quartae, ditonus cum bisdiapason et semiditonus cum bisdiapason quintae.

⁸His ita rite peractis, et hic breviter quae nobis necessaria sunt ad operandum memoriae rursus impressis, quid restat nisi videre, tam per litteras quam per syllabas, quibus haec in manu nostra queant inveniri locis? ⁹Quo circa nempe sciendum debere seu posse tantum fieri per graves aut per acutas aut per superacutas contrapunctum.

¹⁰De A gravi:

Utque non a Γ gamma Graeco, sed ab A Latino primordium habeamus, si sit in A gravi planus cantus, et tu per graves discantare velis, si dixeris etiam A, non consonas, non dissonas, non discantas, sed unisonum facis.

¹¹Quid sit unisonus:

Est enim unisonus totiens quotiens in unam gravis et acutus sonus conveniunt vocem, et quemadmodum unus in arithmetica non habetur numerus, quamquam sit princeps et origo numerorum, ita nec unisonus in musica reputatus est consonantia, licet ab eo procedat omnis ordo consonantiarum.

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7. Decem.... dissonantiae *in marg* HA
 intra *scripsi* infra HA
 8. (per) et (syllabas) *add* H
 10. De A gravi *in marg* HA
 11. Quid sit unisonus *in marg* H om A

⁷The ten compatible dissonances:

The ditone and the semiditone are the first compatible dissonances in the diapente; the second compatible dissonances are the tone with diapente, and the semitone with diapente within the diapason. The third are the ditone with diapason, and the semiditone with diapason; the fourth, the tone with diapason diapente, and the semitone with diapason diapente, and the fifth, the ditone with the bisdiapason, and the semiditone with the bisdiapason.

⁸Now that we have duly dealt with that, and have here again briefly impressed on our memories what we need to proceed, nothing remains but to see in what positions these can be found on our Hand, both by means of the letters and the syllables. ⁹Clearly, in connection with this, it must be realized that counterpoint should, and is able to exist just as much in the low or in the high, and highest registers.

¹⁰Concerning low A:

On the assumption that we have our order of pitches starting, not the Greek gamma (Γ) but on the Latin A, if a plainsong melody has its final on low A, and you wish to produce discant in the low register, if you too sing A, you produce not consonances, not dissonances, not discants,⁷ but a unison.

¹¹What 'unison' is:

A unison exists whenever a low and a high sound resolve onto a single pitch; just as the number one in arithmetic is not considered to be a number at all, though it is the chief and the origin of the numbers, in the same way the unison in music is not regarded as a consonance, though every order of consonances arises out of it.

⁷For Johannes' equation of 'discant' with 'simple counterpoint', see Introduction p. 75.

¹²Quid sit consonantia:

Est hic consonantia non in unum gravis et acuti soni coadunatio, sed quaedam utriusque commixtio varia, concors tamen et amica.

¹³Contrapunctum per graves:

Ergo si C gravem opposueris A, facis quidem semiditonum dissonantiam compassibilem sed non integram, quae transibit etiam ipsa sicuti ditonus per tonum ac minus semitonium ad suum diapente perfectum, si sibi dones de sequenti tono inter C et D maius per diesin semitonium.

¹⁴Nota de diesi pro caeteris non integris:

E vero diapente verum erit et F semitonium cum diapente, sed cum diesi tonus, omnes autem aliae discordant cum A tam litterae quam syllabae de gravibus.

¹⁵Per acutas:

Attamen si per acutas in eodem A laborare volueris, A siquidem quod erat unisonus ibi nunc diapason erit, et C quod simplex ibi semiditonus hic cum diapason compositus.

¹⁶E quoque quod ibi diapente simplex erat hic cum diapason componitur, sed et F semitonium ibi cum diapente, hic semitonium cum diapason diapente dicitur, reprobatis aliis in A per acutas omnibus.

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- 12. Quid sit consonantia *in marg* HA
 - 13. Contrapunctum per graves *in marg* HA
 - 14. Nota de diesi pro caeteris non integris *in marg* HA
 - 15. Per acutas *in marg* HA
 - 16. cum *om* A
D *pro* A A

¹²What a consonance is:

In this context, a consonance is not a merging of a low and a high sound into one, but rather a particular kind of blending of both pitches, different but nevertheless harmonious and pleasant.

¹³Counterpoint in the low register:

Therefore, if you place low C to sound against A, you then produce a semiditone, which is a compatible dissonance, though not a complete one. This also will proceed, like the ditone, through a tone and a minor semitone to arrive at the perfection of its diapente, as long as you bestow on it through diesis a major semitone from the following tone between C and D.

¹⁴Note on the function of the diesis on behalf of the other incomplete dissonances:

The pitch E—placed against low A—will produce a true diapente; the pitch F will produce a semitone with diapente, but a tone with diapente if we use the diesis. All the other letters and syllables produce discords with A, in the low register.

¹⁵Counterpoint in the high register:

However, if you wish to work through to the high pitches on the same pitch A, the A which used to be a unison will now become a diapason, and the C which once was a simple semiditone is now compounded with the diapason.

¹⁶Also the pitch E, which in the first instance was a simple diapente, is now compounded with the diapason, but F, which formed a semitone with diapente, is now called 'semitone with diapason diapente', and all others on A in the high register are rejected.

¹⁷Per superacutas:

Quod si per superacutas contrapunctum in A gravi vel acuto vel superacuto facere desideras, scito quod A unisonus in gravibus et diapason in acutis, hic sit bisdiapason, et C semiditonus in gravibus et semiditonus cum diapason in acutis, hic semiditonus cum bisdiapason efficitur.

¹⁸E vero, quod in gravibus diapente fuit, et in acutis diapason diapente, quod hic bisdiapason diapente sit necesse est, spretis utputa caeteris omnibus in A de superacutis.

¹⁹Regula generalis:

Ubicumque ergo fuerit A, si dixerimus per contrapunctum A vel *re* vel *la*, itemque C vel *fa* vel *ut*, item E vel *la* vel *mi*, et etiam F vel *fa* vel *ut*, non discordabimus unquam.

²⁰Exceptio:

Excepto tamen E, quod ubique super A diapente facit, sub *a* autem acuto vel superacuto diatessaron, quae sicut dictum est in hoc ritu canendi reprobata.

²¹Ita tamen quod a cantantibus debita cuiusque vocis, tam intentae quam remissae, conservetur modulatio, quam ordinate scilicet sequens monstrat descriptio.

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- | | |
|-----|---|
| 17. | Per superacutas <i>in marg</i> HA
in <i>om</i> A
(hic) sit (semiditonus) <i>add</i> A |
| 18. | E quod vero A |
| 19. | Regula generalis <i>in marg</i> HA
vel <i>om</i> A |
| 20. | Exceptio <i>in marg</i> HA |
| 21. | cantibus <i>pro</i> cantantibus A |

¹⁷Counterpoint in the highest register:

Now if you wish to create counterpoint through the highest pitches on either low, high, or the highest A, realize that what was a unison A in the low register and a diapason in the high, becomes in this case a bisdiapason; the pitch C which formed a ditone in the low register, and a semiditone with diapason in the high, now is made into a semiditone with bisdiapason.

¹⁸The pitch E, which in the low register was a diapente, and in the high a diapason diapente must now become a bisdiapason diapente. The rest of the pitches in the highest register are of course rejected on A for the purpose of counterpoint.

¹⁹The general rule:

Therefore, whenever the pitch A has occurred, if in the contrapuntal process we call A *re* or *la*, C *fa* or *ut*, E *la* or *mi*, and F *fa* or *ut*, we shall never produce discords.

²⁰The exception:

I make an exception of the pitch E, which always produces a diapente above A, but underneath high A, or very high A produces a diatessaron, an interval which, as I have already pointed out, is forbidden in this kind of singing.

²¹Thus let the proper melodic relationship of each individual pitch, whether rising or falling, be preserved by singers; the following description explains it systematically.

²²Cumque syllabas litteris addentes dicimus vel *ut* vel *re* vel *mi* sicque de relictis, sub eadem tantum littera de qua loquimur est intellegendum, sin autem vera non esset regula. ²³Quamvis enim *re* sub *a* acuto sit bonum ad A grave, *re* tamen sub D gravi discors est, sique de multis.

(Figura in pagina 596)

22. vera non *om* A

²²And when we add the syllables to the letters, and refer to *ut re* or *mi* and so on, it must be understood that a syllable belongs only under the letter of which we are speaking, otherwise the rule would not hold water. ²³For though the syllable *re* underneath high A is perfectly acceptable in relation to low A, *re*—again in relation to low A—underneath low D produces a dissonance. There are many instances of this.

(Diagram on page 597)

24Haec quidem prima species diapason, quae consonat ab *a* gravi in acutum, in qua rubeae consonum dant litterae contrapunctum intensum atque remissum omne quod fieri potest desuper hoc unisono:

	Bisdiapason cum diapente super unisono	
	Semiditonus cum bisdiapason super unisono	
	Bisdiapason super unisono	
	Semitonium cum diapason diapente super unisono	
	Diapason diapente super unisono	
	Semiditonus cum diapason super unisono	
	Diapason super unisono	
	Semitonium cum diapente super unisono	
	Diapente super unisono	
	Semiditonus super unisono	
	UNISONUS	
Intensae voces		Remissae voces

²⁴Here is the first species of diapason, which produces a consonance between low and high A. In the diagram, the red letters show every consonant counterpoint, both in ascent and descent, which can occur above the unison.

<u>E La ♯</u>	The bisdiapason with diapente above the unison	<u>E La ♯</u>
<u>C# Fa ♯</u>	The bisdiapason semiditone above the unison	<u>C# Fa ♯</u>
<u>A Re ♯</u>	The bisdiapason above the unison	<u>A La ♯</u>
<u>F# Fa ♯</u>	The diapason diapente plus semitone above the unison	<u>F# Fa ♯</u>
<u>E Mi ♯</u>	The diapason diapente above the unison	<u>E Mi ♯</u>
<u>C# Fa ♯</u>	The diapason semiditone above the unison	<u>C# Fa ♯</u>
<u>A Re ♯</u>	The diapason above the unison	<u>A La ♯</u>
<u>F# Fa ♯</u>	The diapente plus semitone above the unison	<u>F# Fa ♯</u>
<u>E Mi ♯</u>	The diapente above the unison	<u>E Mi ♯</u>
<u>C# Fa ♯</u>	The semiditone above the unison	<u>C# Fa ♯</u>
<u>A Re ♯</u>	THE UNISON	<u>A Re ♯</u>
Ascending pitches		Descending pitches

[IV]

¹De ♭ gravi:

♭ grave cum ♭ gravi nemo nunc dubitet quin sit unisonus. ²Ad quod quidem D grave semiditonus est, et G grave semitonium cum diapente, quae cum ambae sint non integrae, cum diesi tamen sicut et caeterae sui generis integrae fient.

³In acutis autem ♭ quadrum et non rotundum diapason erit, D vero semiditonus cum diapason est, cum G in semitonium cum diapason diapente redundet.

⁴Per superacutas tamen ♭ quadrum et non rotundum bisdiapason est ad idem ♭ grave, sed simplex diapason ad ♭ quadrum acutum et non rotundum, sicut et aliae omnes tam perfectae consonantiae quam et dissonantiae compassibiles, quae sunt unum in gravibus et aliud in acutis ac superacutis, ut est in A diligenter ostensum nec id reor ultra replicare necessarium. ⁵D quoque semiditonus cum bisdiapason est, quod erit in exemplo sequenti clarissimum.

⁶Regula generalis:

Nusquam in ♭ discordare possumus, si ♭ vel *mi* vel D vel *sol* vel *re* vel G vel *sol* vel *ut* dixerimus, ut hic infra patebit. ⁷Summopere tamen cavere debes ne dicas unquam ♭ quadrum vel *mi* in ♭ tam acuto quam superacuto cum videris ibi tritonum, nec aliam ♭ quadrum habet exceptionem, eo quod F sub ♭ sit semper tritonus, desuper autem diapente non verum, ac per consequens in hoc ritu canendi reprobum.

-
1. A 55r H 70r
nunc *om* A
 2. grave semiditonus est *in marg* H
et *om* A
 4. diapason *pro* bisdiapason A
in *om* A
 6. Regula generalis *in marg* HA
 7. Summo opere A

[IV]

¹Concerning low b :

Low b sounding with low b no-one may now deny is a unison. ²In relation to this pitch, low D is a semiditone, and low G a semitone with diapente; since both of these intervals are not complete, they will, like others of the same type, become so with the use of the diesis.

³In the high register, in relation to the low b , the square b and not the round type will form a diapason; the pitch D forms the interval of a semiditone with diapason, whereas G will form the larger interval of the diapason diapente with semitone.

⁴In the highest register, however, the square b not the round b forms a bisdiapason in relation to low b , but a simple diapason in relation to the high square b , not the round b . This applies to all the other perfect consonances and to the compatible dissonances, which involve one unit in the low register, and another in the high and in the highest registers. I have carefully explained this as far as A is concerned, and I do not think it necessary to repeat this explanation any further. ⁵The pitch D forms a bisdiapason plus semiditone, a fact which is made perfectly clear in the following diagram.

⁶The general rule:

We can nowhere form a discord with b if we call b *mi*, or D *sol* or *re*, or G *sol* or *ut*—a fact which will be made clear below. ⁷However, you must take great care never to refer to the high b or highest as square b or *mi*, when you there see a tritone; the square b involves no other exception because the pitch F below b always forms a tritone, while above it, it forms a false diapente. Consequently it is forbidden in this kind of singing.

⁸Haec est secunda species diapason, quae consonat a \flat gravi in acutum, in qua rubeae consonum dant litterae contrapunctum, intensum atque remissum, omne quod fieri potest super et sub unisono.

~~$\text{D}\sharp$ Sol a~~ Semiditonus cum bisdiapason super unisono

~~$\text{D}\sharp$ Sol a~~

~~\flat Mi a~~ Bisdiapason super unisono

~~\flat Mi a~~

~~$\text{G}\sharp$ Sol a~~ Semitonium cum diapason diapente super unisono

~~$\text{G}\sharp$ Sol a~~

$\text{D}\sharp$ Re a Semiditonus cum diapason super unisono

$\text{D}\sharp$ Sol a

\flat Mi a Diapason super unisono

\flat Mi a

$\text{G}\sharp$ Sol a Semitonium cum diapente super unisono

$\text{G}\sharp$ Sol a

~~$\text{D}\sharp$ Re a~~ Semiditonus super unisono

~~$\text{D}\sharp$ Sol a~~

~~\flat Mi a~~ UNISONUS

~~\flat Mi a~~

~~F Ut a~~ Ditonus sub unisono

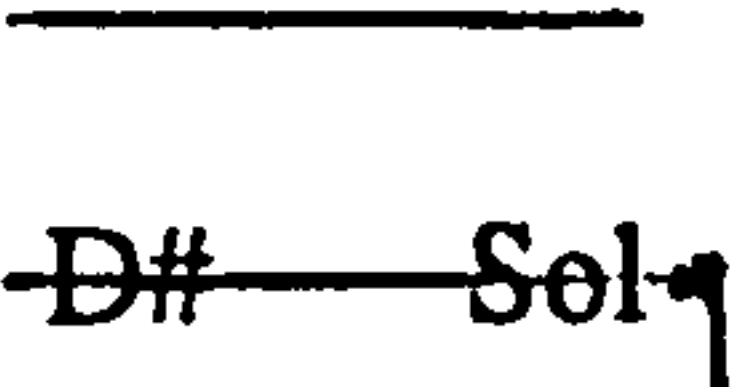
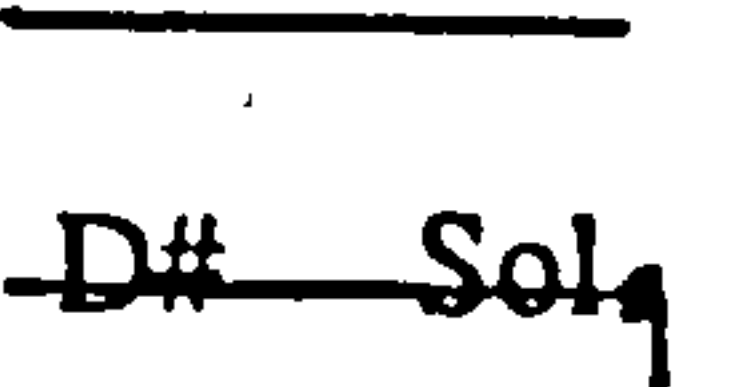
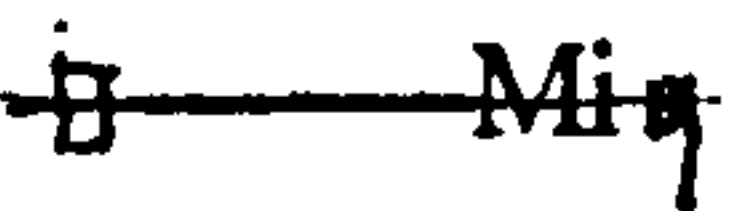
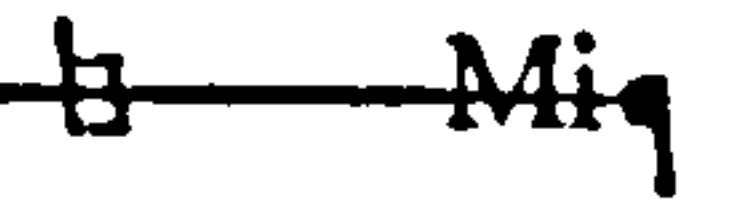









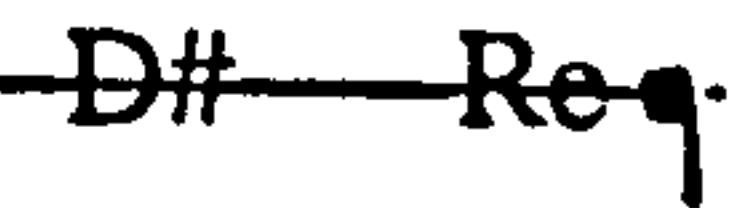

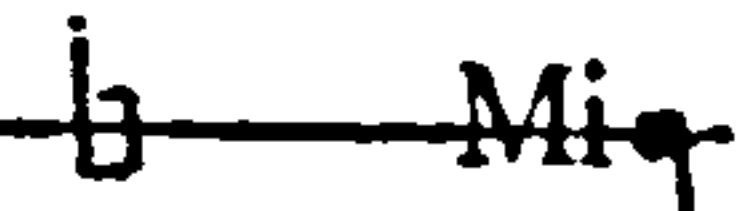
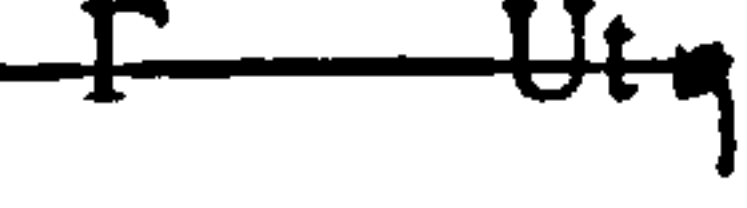

~~F Ut a~~

Intensae
voces

Remissae
voces

8. est om A
in om A
et om A

⁸Here is the second species of diapason, which forms a consonance between low b and high b . Within this, the red letters show every consonant counterpoint, both in ascent and descent, which can take place above and below the unison.

	The bisdiapason plus semiditone above the unison	
	The bisdiapason above the unison	
	The diapason diapente plus semitone above the unison	
	The diapason plus semiditone above the unison	
	The diapason above the unison	
	The diapente plus semitone above the unison	
	The semiditone above the unison	
	THE UNISON	
	The ditone below the the unison	
Ascending pitches		Descending pitches

[V]

¹De C gravi:

C grave cum C gravi non dubium unisonus est, E vero per graves ditonus, sed G diapente verum.

²Per acutas autem A tonus est cum diapente, C diapason, E ditonus cum diapason, et G diapason diapente.

³In superacutis nihilominus A tonus est cum diapason diapente, C bisdiapason, E ditonus cum bisdiapason.

⁴Regula generalis:

Omnis littera C cum sua syllaba *fa* vel *ut*, aut E cum sua syllaba *mi* vel *la*, vel G cum *sol* vel *ut*, aut A cum *re* vel *la*, nullam in omni C generare valent discordiam.

⁵Exceptio:

Excepto G quod semper super C bene consonat, sub illo tamen positum diatessaron gignere solet. ⁶Quae si fieret simplex non esset mortale peccatum, etsi composita discors sit ac reproba, prout in hac quae sequitur probari potest figura.

(Figura in pagina 604)

1. A 55v H 71r
2. cum *om* A
4. Regula generalis *in marg* HA
cum *om* A
genare A
5. Exceptio *in marg* HA
G quod semper bene consonat super C A

[V]

¹Concerning low C:

There is no doubt that low C sounding with low C is a unison, that the pitch E in the low register forms a ditone with it, but that G forms a true diapente.

²In the high register, A forms a tone with diapente, the pitch C a diapason, E a ditone with diapason, and the pitch G a diapason with diapente.

³In the highest register no less, the pitch A forms a tone with diapason diapente, C a bisdiapason, and the pitch E a ditone with bisdiapason.

⁴The general rule:




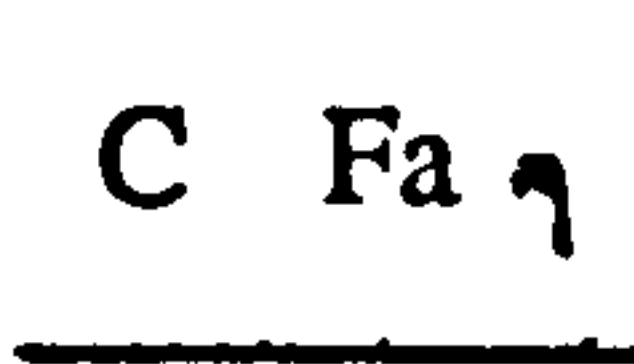
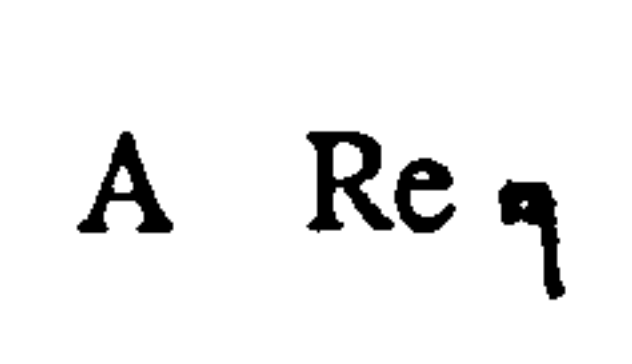
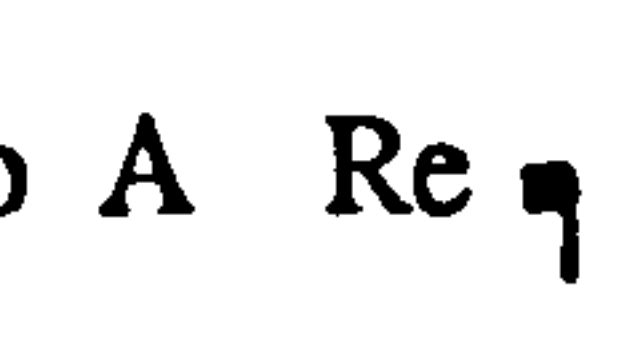
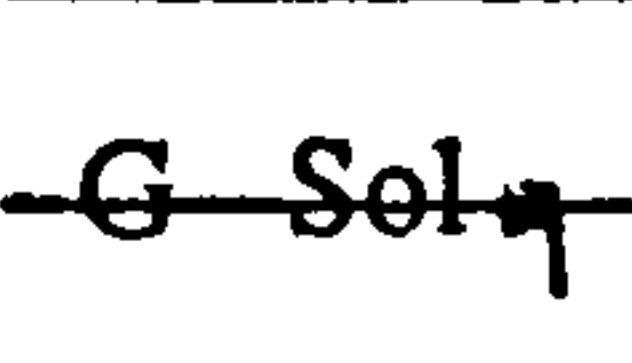
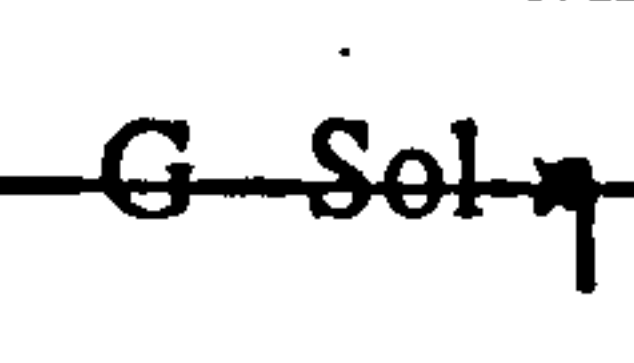
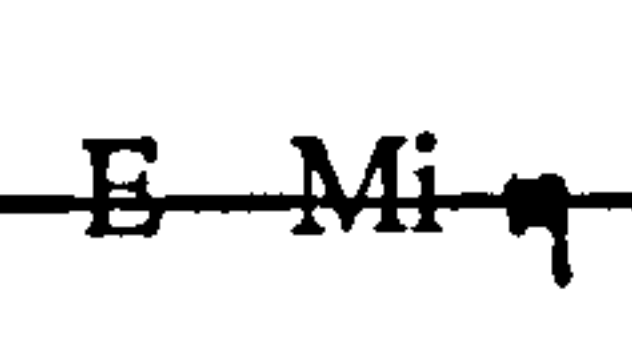
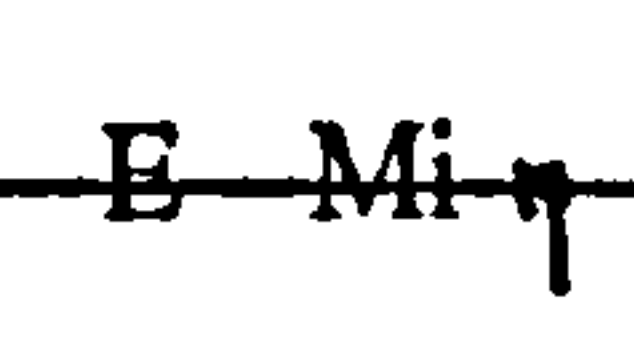
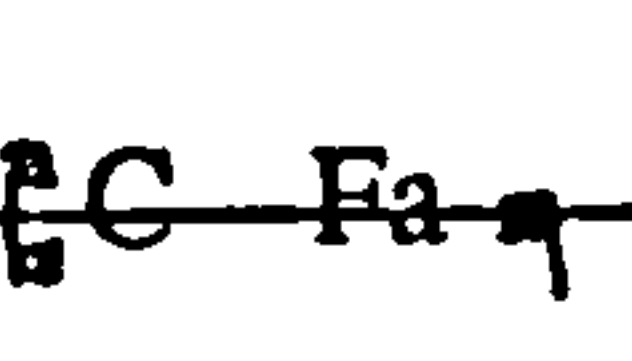
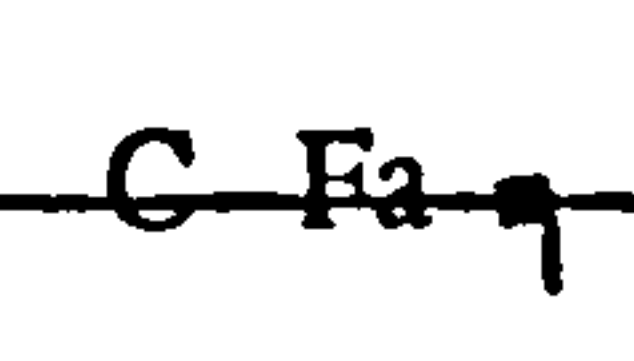
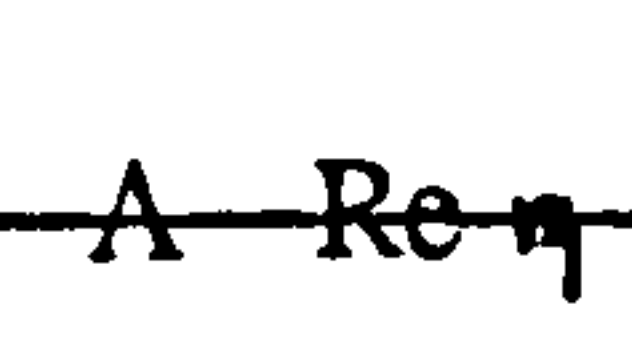
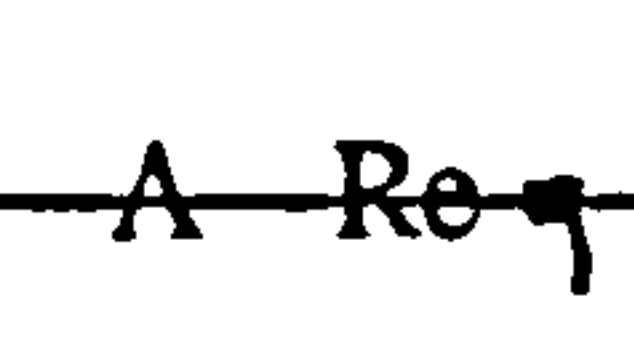
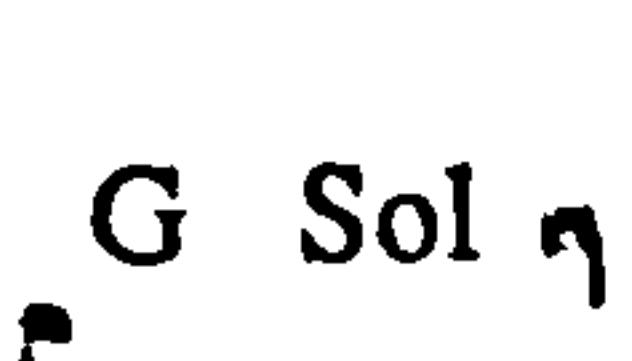

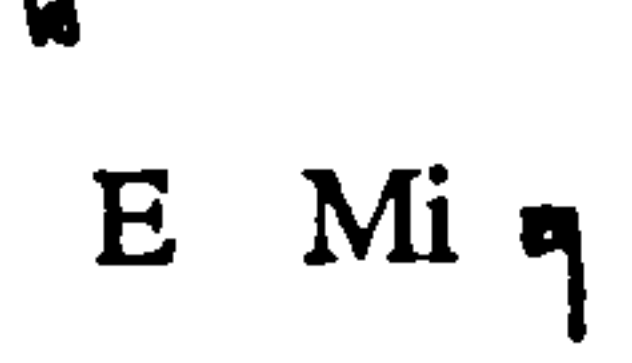

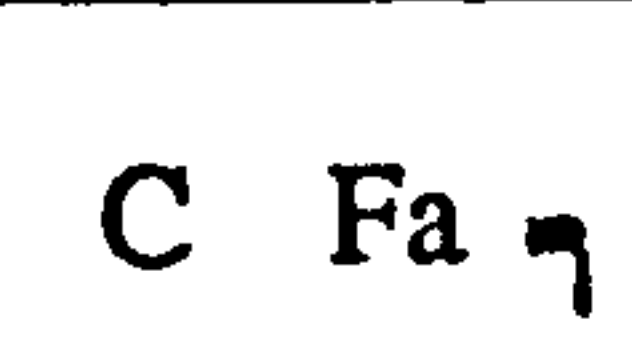
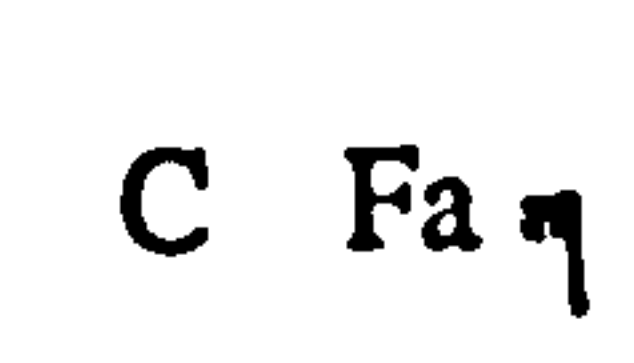
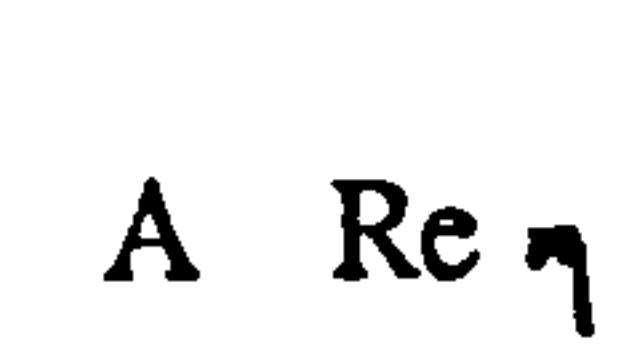

In relation to each pitch C, the following pitches are not able to produce a dissonance: every letter C with its syllables *fa* or *ut*, or E with its syllable as either *mi* or *la*, G with *sol* or *ut*, or the pitch A with *re* or *la*.

⁵The exception:

I make an exception of the pitch G, which always produces a perfect consonance above C, but which produces a diatessaron when placed underneath it. ⁶Were this a simple interval, it would not be a mortal sin, but as a compound interval it is a forbidden dissonance, as the following diagram is able to prove.

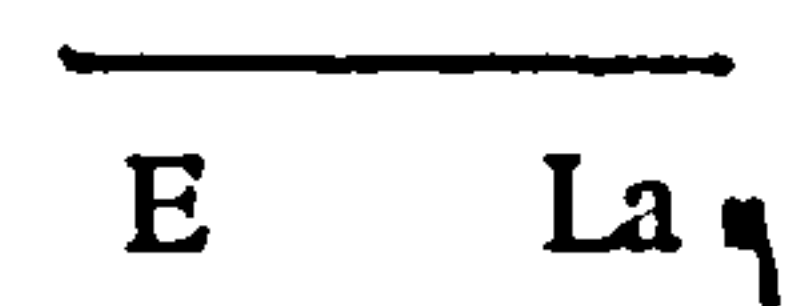

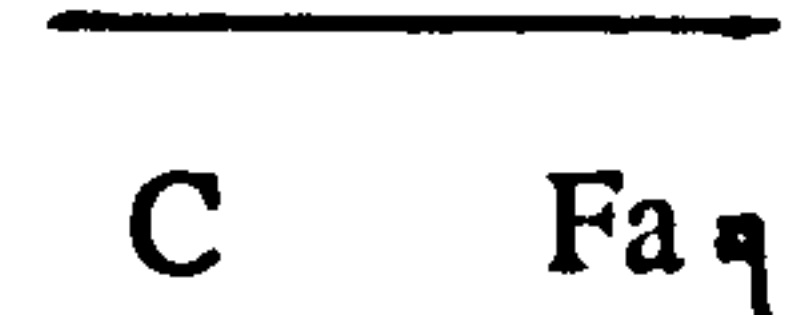

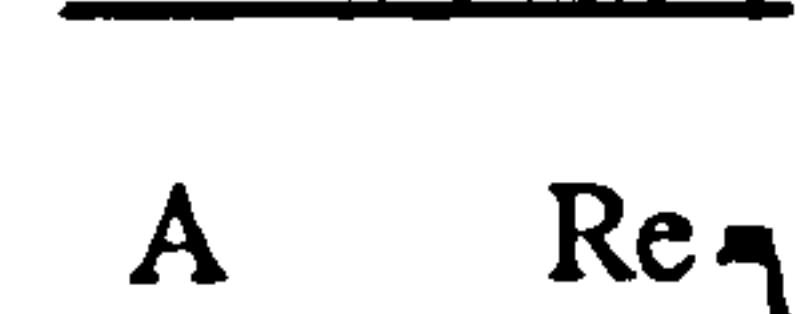

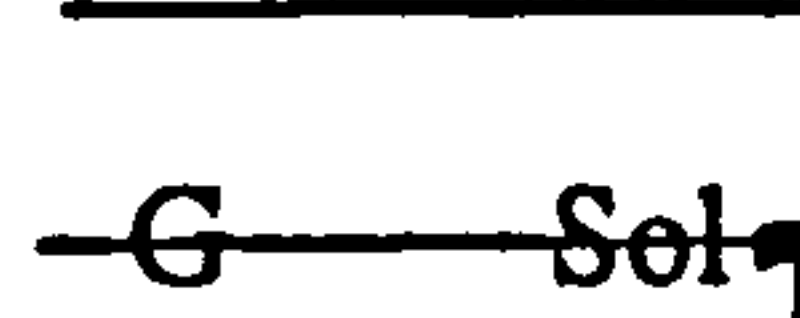
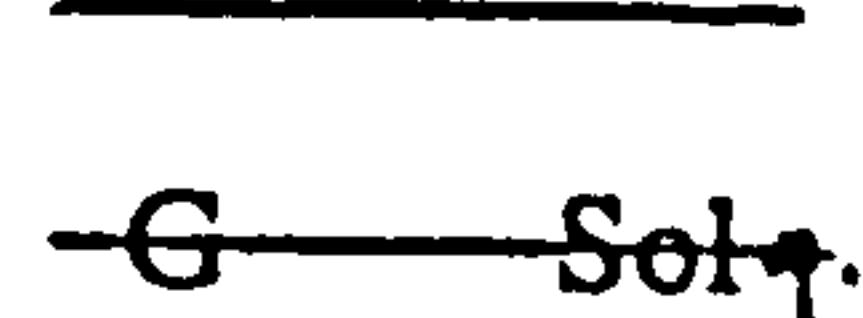
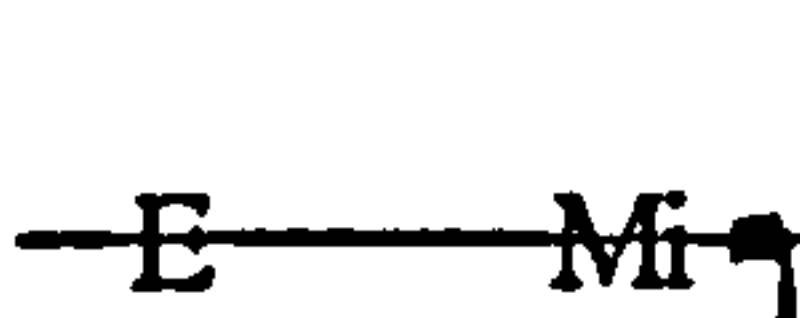

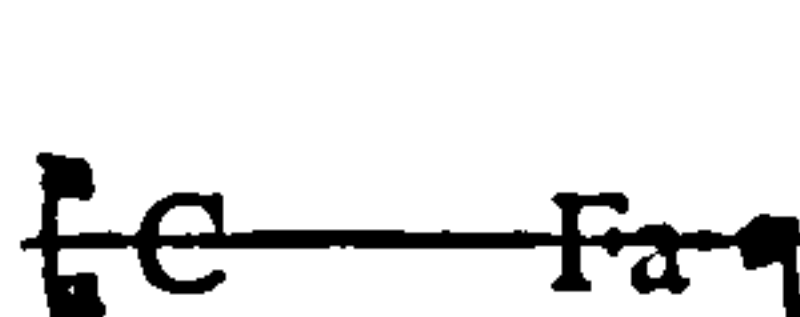

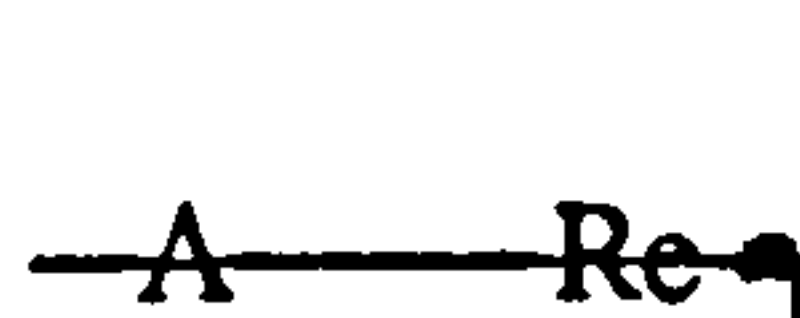







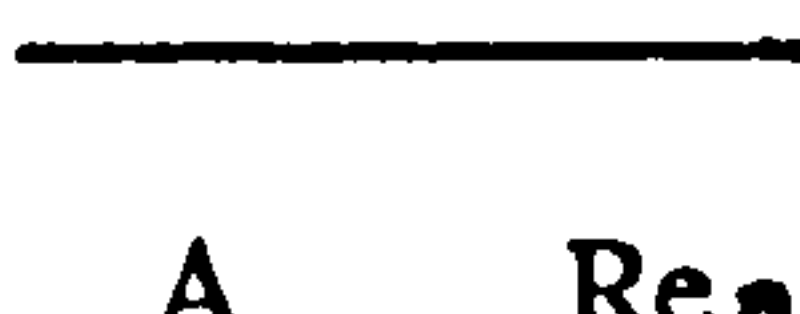

(Diagram on page 605)

7Haec est tertia species diapason, quae consonat a C gravi in acutum, in qua rubeae consonum dant litterae contrapunctum, intensum atque remissum, omne quod fieri potest super et sub unisono.

	Ditonus cum bisdiapason super unisono	
	Bisdiapason super unisono	
	Tonus cum diapason diapente super unisono	
	Diapason diapente super unisono	
	Ditonus cum diapason super unisono	
	Diapason super unisono	
	Tonus cum diapente super unisono	
	Diapente super unisono	
	Ditonus super unisono	
	UNISONUS	
	Semiditonus sub unisono	
Intensae voces		Remissae voces

7. In A, the order of examples is reversed: that of VIII occurs here, followed by that of VII.

⁷Here is the third species of diapason, which forms a consonance between the low C and the high. Within this, the red letters show every consonant counterpoint, both in ascent and descent, which can take place above and below the unison.

	The bisdiapason plus ditone above the unison	
	The bisdiapason above the unison	
	The diapason diapente plus tone above the unison	
	The diapason diapente above the unison	
	The diapason plus ditone above the unison	
	The diapason above the unison	
	The diapente plus tone above the unison	
	The diapente above the unison	
	The ditone above the unison	
	THE UNISON	
	The semiditone below the unison	
Ascending pitches		Descending pitches

7. In A, the order of examples is reversed: that of VIII occurs here, followed by that of VII.

[VI]

¹De D gravi:
D grave coaequatum D gravi siquidem unisonus est; attamen F grave semiditonus, et cum diesi ditonus.

²In acutis autem A diapente consonat ad ipsum D, \flat quadrum vero tonum cum diapente, D diapason, F semiditonus cum diapason.

³Per superacutas autem gignit A diapason diapente, \flat quadrum vero tonum cum diapason diapente, D tamen bisdiapason.

⁴Regula generalis:
In quocumque D volueris, D vel *sol* vel *re*, F vel *fa* vel *ut*, A vel *re* vel *la*, sicut nec \flat vel *mi*, nullam habent discordiam, ut hic infra patebit.

⁵Exceptio:
Excepto A, quod ubique super D diapente consonantiam habet, sub quo tamen diatessaron facit, hic iam diu reprobata.

(Figura in pagina 608

1.

A 56r H 71v
et *om* A

4.

Regula generalis *in marg* HA
mi om A
haberet *pro* habent A

5.

Exceptio *in marg* HA

[VI]

¹Concerning low D:

Low D sounding together with low D forms a unison; low F with low D forms a semiditone, and through the diesis a ditone.

²In the high register, the pitch A forms the consonance of a diapente against the same D, the square \sharp a tone plus diapente, the pitch D a diapason, and the F a semiditone with diapason.

³In the highest register, the pitch A forms a diapason diapente, the square \sharp a tone with diapason diapente, while the pitch D forms a bisdiapason.

⁴The general rule:

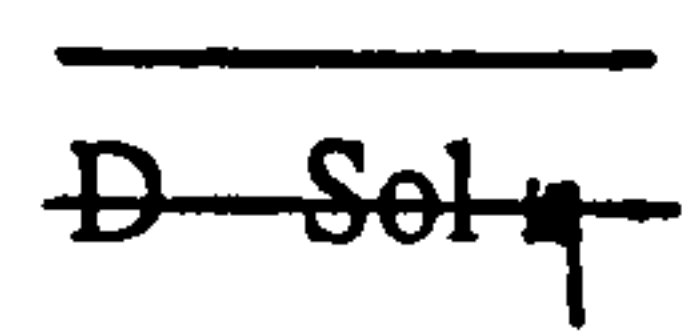
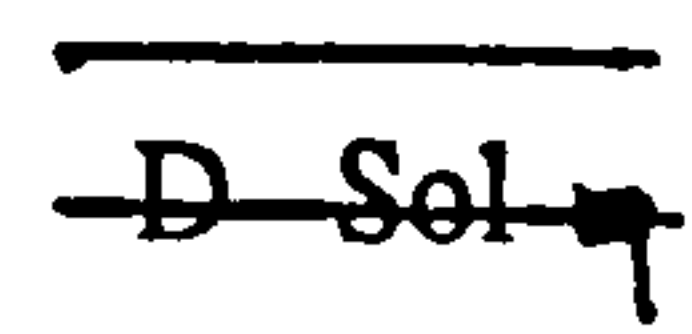
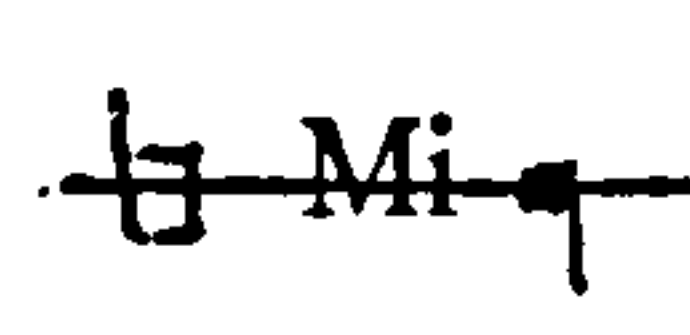
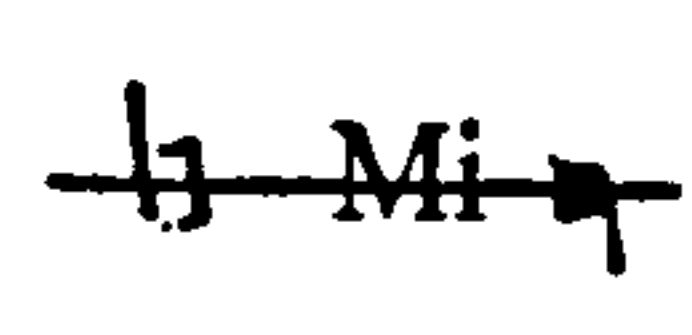



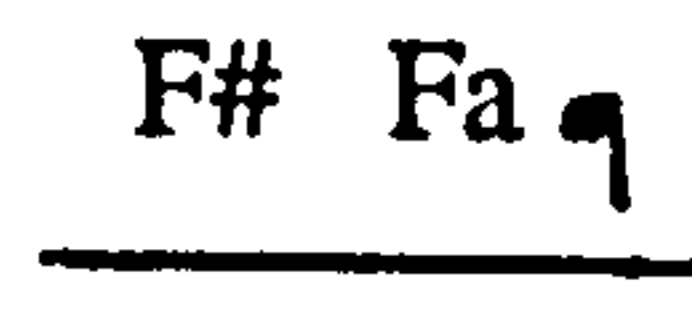
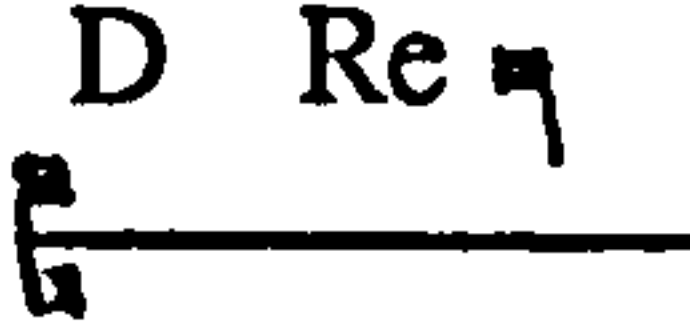


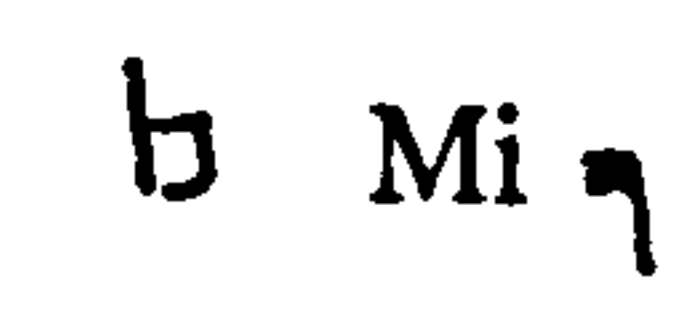
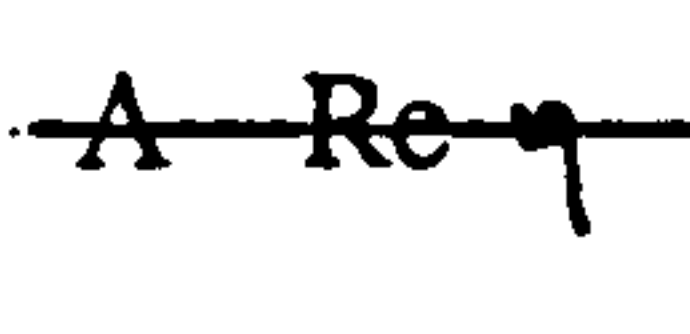

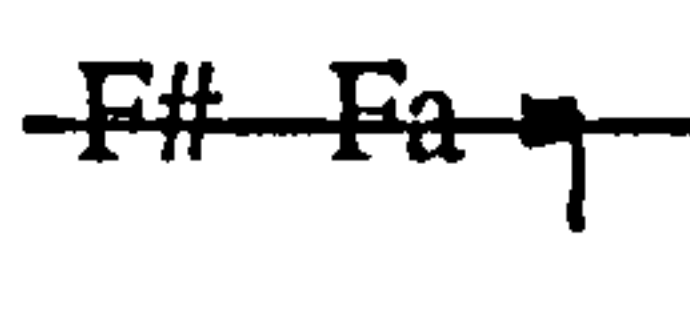
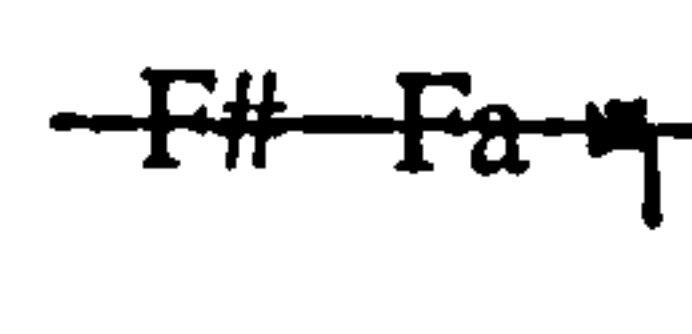
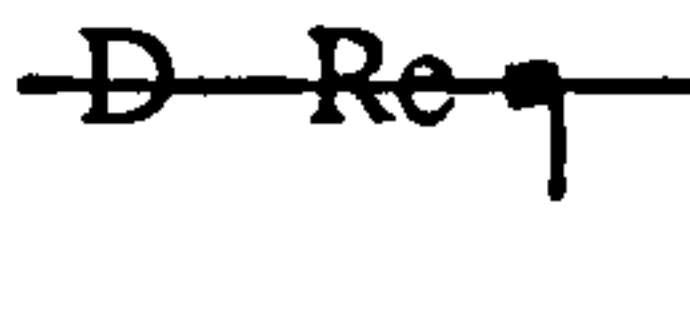


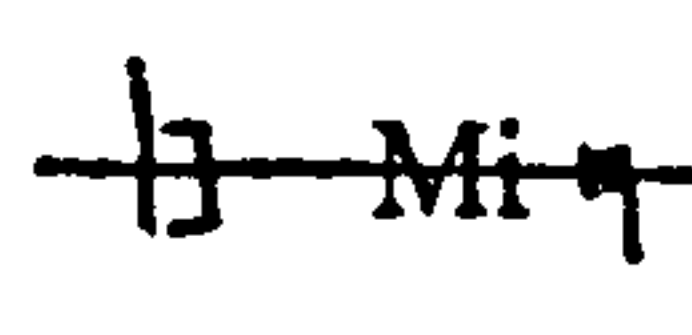
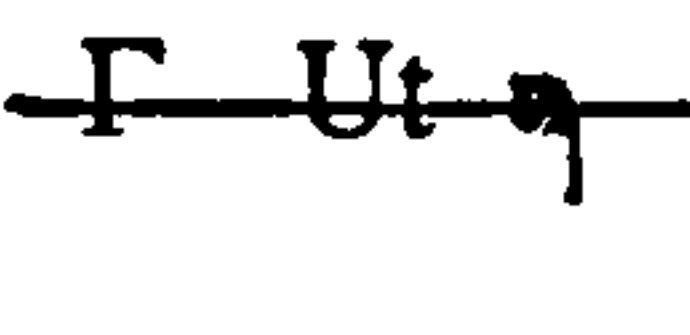
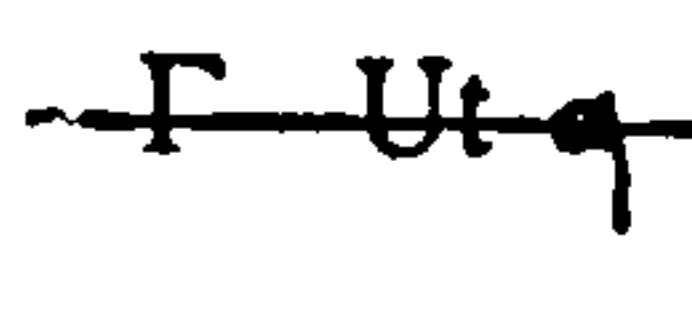
On whatever D you wish, the following contain no discord: D as either *sol* or *re*, F as either *fa* or *ut*, A as either *re* or *la*, and \sharp as *mi*. This will be made clear below.

⁵The exception:

I make an exception of A which invariably forms the consonance of the diapente above D, but beneath it produces a diatessaron, for a long time now prohibited in this context.















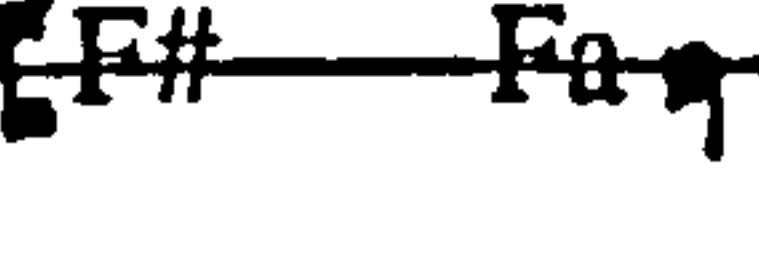
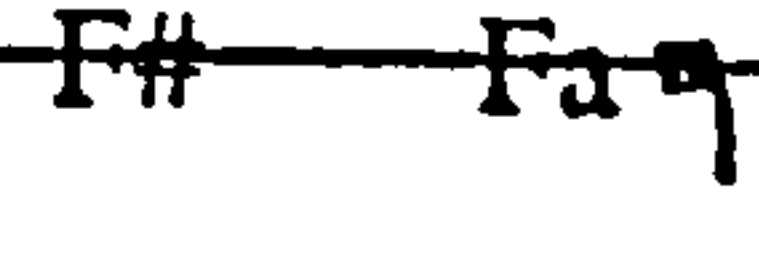





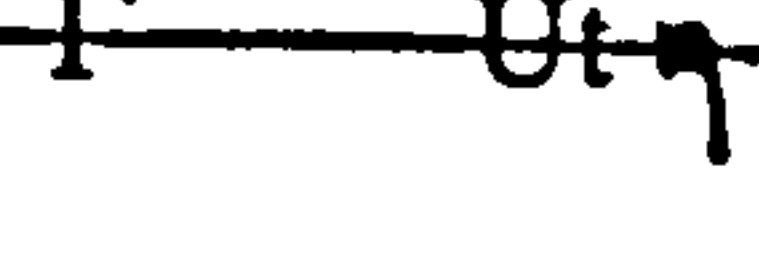
(Diagram on page 609)

⁶Haec quidem quarta species diapason, quae consonat a D gravi in acutum, in qua rubeae consonum dant litterae contrapunctum, intensum atque remissum, omne quod fieri potest super et sub unisono.

	Bisdiapason super unisono	
	Tonus cum diapason diapente super unisono	
	Diapason diapente super unisono	
	Semiditonus cum diapason super unisono	
	Diapason super unisono	
	Tonus cum diapente super unisono	
	Diapente super unisono	
	Semiditonus super unisono	
	UNISONUS	
	Semiditonus sub unisono	
	Diapente sub unisono	
Intensae voces		Remissae voces

6. quod *pro* quæ H
 In ex # ubique om A

⁶Here is the fourth species of diapason, which forms a consonance between low and high D. Within this, the red letters show every consonant counterpoint, both in ascent and descent, which can take place above and below the final.

	The bisdiapason above the unison	
	The diapason diapente plus tone above the unison	
	The diapason diapente above the unison	
	The diapason plus semiditone above the unison	
	The diapason above the unison	
	The diapente plus tone above the unison	
	The diapente above the unison	
	The semiditone above the unison	
	THE UNISON	
	The semiditone below the unison	
	The diapente below the unison	
Ascending pitches		Descending pitches

[VII]

¹De E gravi:

E grave cum E gravi, sicut praedictae litterae similes, in eodem sono simul unitae non consonantia vel dissonantia, sed unisonus est. ²G vero semiditonus ad ipsum E, quamquam fiat cum diesi ditonus aut fieri debeat.

³In acutis autem ♩ quadrum diapente consonat, C semitonium cum diapente, et E diapason; G nihilominus semiditonus cum diapason, sed facta diesi, prout in similibus fieri debet, cum eadem consonantia ditonus erit.

⁴Per superacutas vero ♩ quadrum in diapason diapente, C in semitonium cum diapason diapente, sed E in bisdiapason ad idem E grave resultat.

⁵Regula generalis:

Omnis E littera vel *la* vel *mi* sua syllaba, vel G vel *sol* vel *ut*, vel ♩ quadrum vel *mi*, vel C vel *fa* vel *ut*, nusquam in E facit discordiam.

⁶Exceptio:

Excepto ♩ quadro vel *mi* quae super E semper diapente consonans, sub eodem E diatessaron generat, quod haec quae sequitur figura demonstrat.

(Figura in pagina 612)

1. A 56v H 72r

5. Regula generalis in marg H om A

6. Exceptio in marg H om A

[VII]

¹Concerning low E:

Low E coupled with low E, in common with the previous similar letters, if coupled together in the same sound, is neither a consonance or a dissonance, but a unison. ²In relation to the same E, the pitch G forms a semiditone, though through diesis, it becomes a ditone, or at least this is what should happen.

³In the high register, however, the square E strikes the consonance of a diapente, the pitch C a semitone plus diapente, and E a diapason. The pitch G produces a semiditone plus diapason, but, as should be the case in similar contexts, it will become a ditone with the same consonance when a diesis is produced.

⁴In the very high register, the square E produces, in conjunction with the same low E, a diapason diapente, C a semitone with diapason diapente, and the pitch E a bisdiapason.

⁵The general rule:





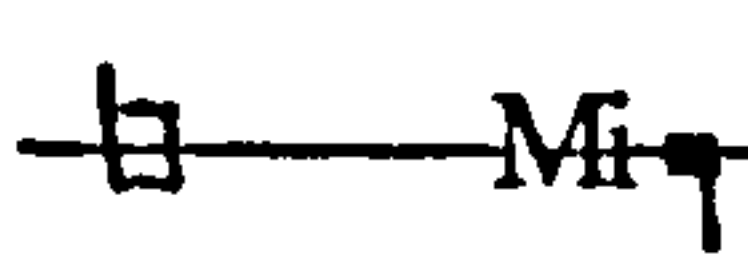

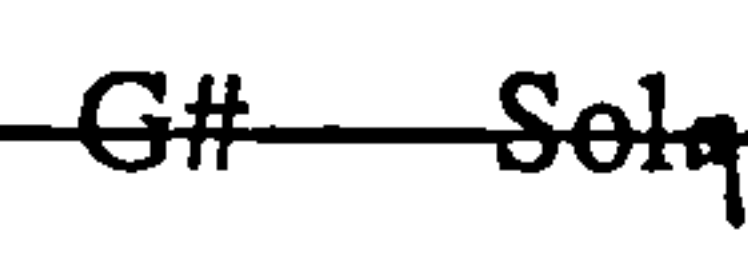
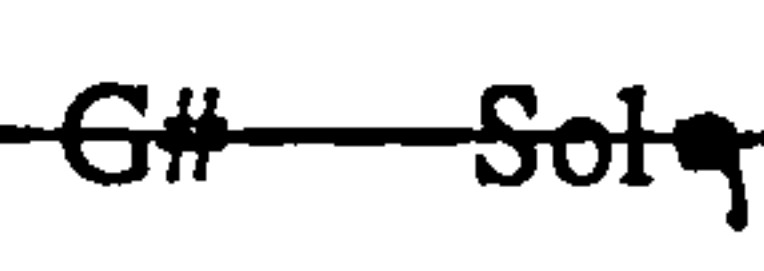
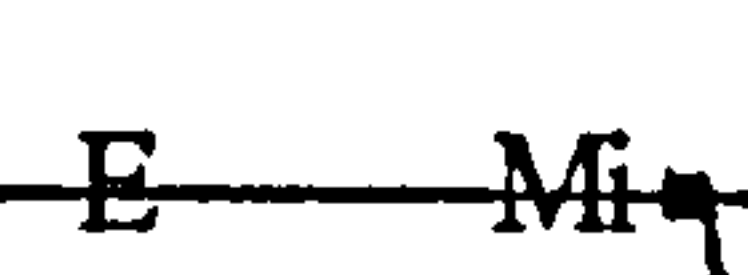








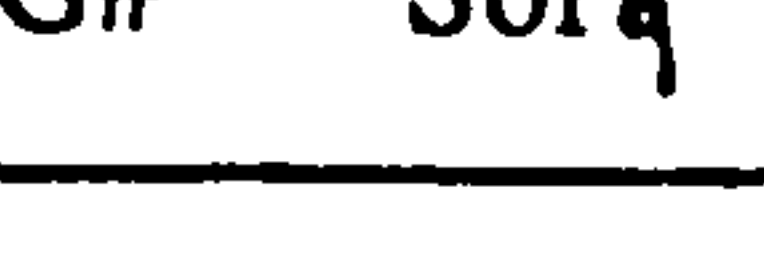




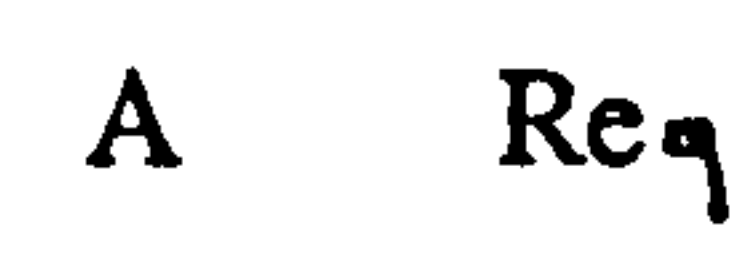

The following nowhere produce a dissonance against the pitch E: every E or its syllable *la* or *mi*, G or *sol* or *ut*, square E or *mi*, or the pitch C with *fa* or *ut* as its syllable.

⁶The exception:

The exception is the square E or *mi*, which, though it always strikes a consonance of a diapente above E, underneath it produces a diatessaron, which the following diagram demonstrates.

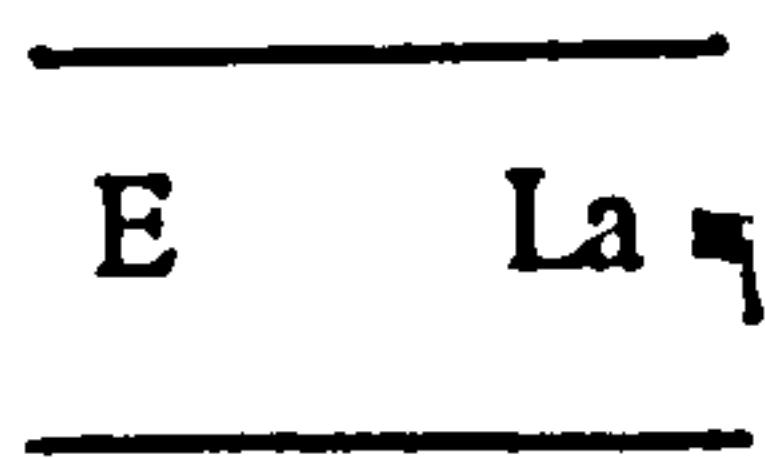

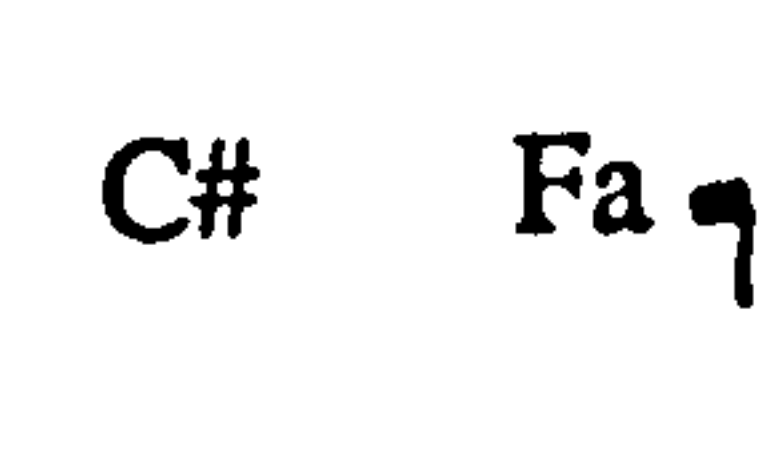
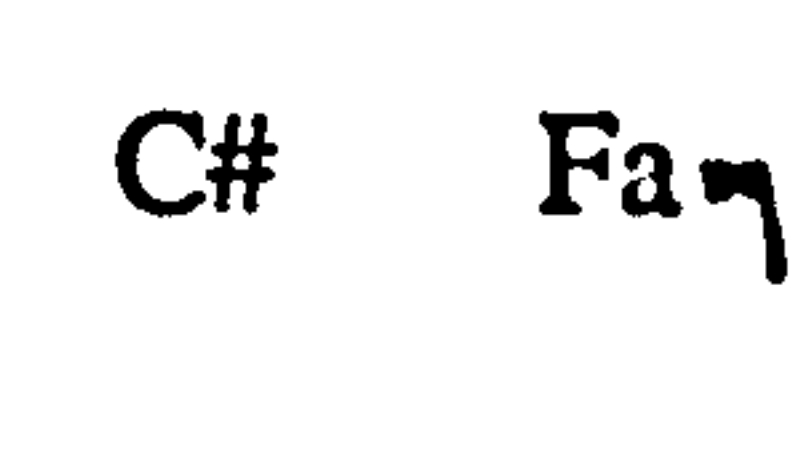






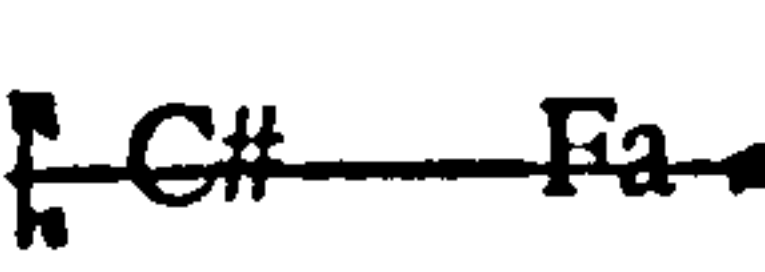

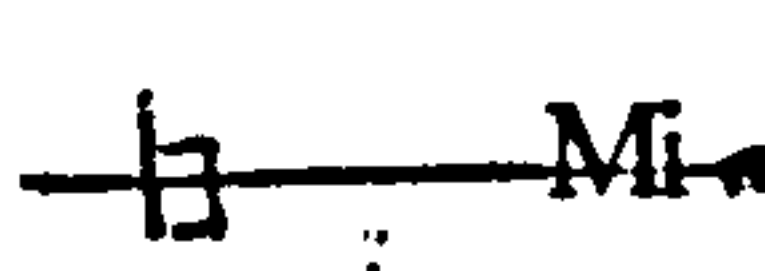



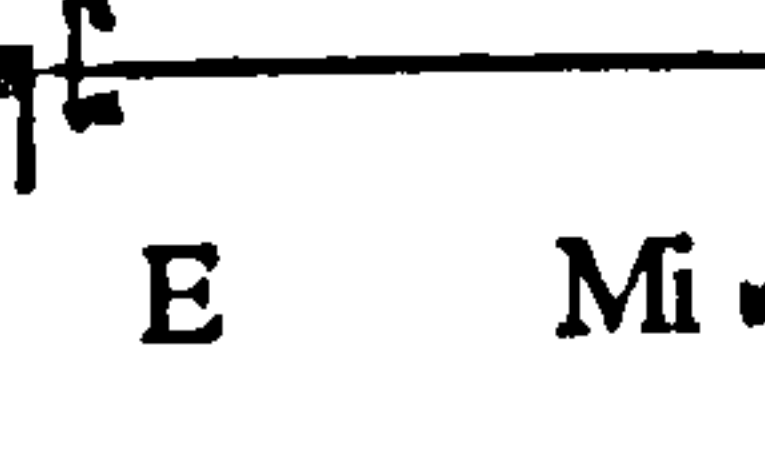
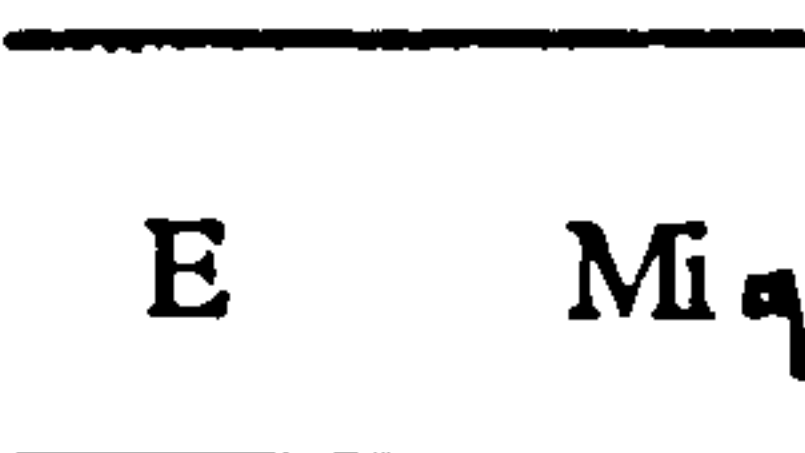



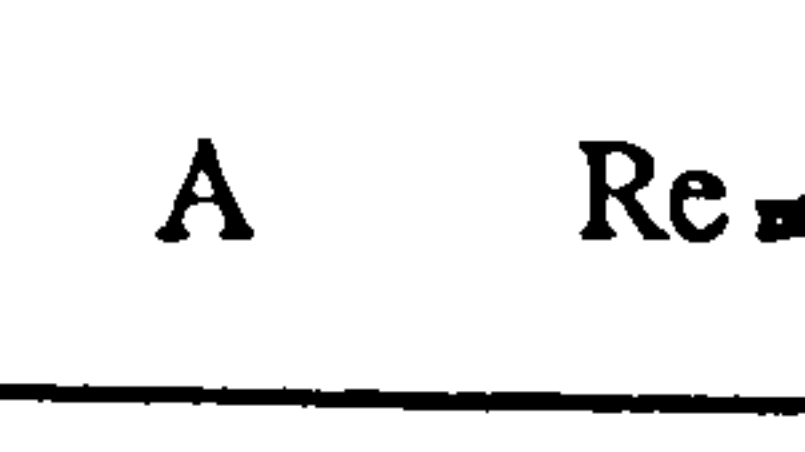


(Diagram on page 613)

7Haec quidem quinta species diapason, quae consonat ab E gravi in acutum, in qua rubeae consonum dant litterae contrapunctum, intensum atque remissum, omne quod fieri potest super et sub unisono.

	Bisdiapason super unisono	
	Semitonium cum diapason diapente super unisono	
	Diapason diapente super unisono	
	Semiditonus cum diapason super unisono	
	Diapason super unisono	
	Semitonium cum diapente super unisono	
	Diapente super unisono	
	Semiditonus super unisono	
	UNISONUS	
	Ditonus sub unisono	
	Diapente sub unisono	
	Tonus cum diapente sub unisono	
Intensae voces		Remissae voces

7. In ex # ubique om A

⁷Here is the fifth species of diapason, which forms a consonance between low and high E. Within this, the red letters show every consonant counterpoint, both in ascent and descent, which can take place above or below the unison.

	The bisdiapason above the unison	
	The diapason diapente plus semitone above the unison	
	The diapason diapente above the unison	
	The diapason plus semitone above the unison	
	The diapason above the unison	
	The diapente plus semitone above the unison	
	The diapente above the unison	
	The semiditone above the unison	
	THE UNISON	
	The ditone below the unison	
	The diapente below the unison	
	The diapente plus tone below the unison	
Ascending pitches		Descending pitches

[VIII]

¹De F gravi:

F grave cum F gravi nulli dubium quod unisonus sit.

²In acutis autem A ditonus est, C diapente, D tonus cum diapente, F diapason.

³Per superacutas vero ditonus cum diapason erit A, C diapason diapente, D tonus cum diapason diapente.

⁴Regula generalis:

Ubicumque fuerit F si dixerimus etiam F vel *fa* vel *ut*, vel A vel *la* vel *re*, vel C vel *fa* vel *ut*, vel D vel *sol* vel *re*, nusquam poterimus discordare.

⁵Exceptio:

Excepto C quod semper ad F habet diapente desuper, subter autem diatessaron in hoc, ut dictum est, genere canendi reprobam.

(Figura in pagina 616)

1. A 57r H 72v
3. cum *om* A
4. Regula generalis *in marg* HA
5. Exceptio *in marg* HA
quod semper habet ad F A

[VIII]

¹Concerning low F:

No-one doubts that low F sounding with low F is a unison.

²In the high register, A forms a ditone with it, C a diapente, D a tone plus diapente, and F a diapason.

³In the highest register, the pitch A will form a ditone plus diapason, C a diapason diapente, and the pitch D a tone plus diapason diapente.

⁴The general rule:

Whenever the pitch F occurs, if we call F *fa* or *ut*, A *la* or *re*, C *fa* or *ut*, and D *sol* or *re*, we shall nowhere be able to produce a dissonance.

⁵The exception:

The exception to the rule is the pitch C, which always produces a diapente above F, but beneath it produces a diatessaron, which, as I have pointed out, is forbidden in this style of singing.

(Diagram on page 617)

⁶Haec quoque sexta species diapason, quae consonat ab F gravi in acutum, in qua rubeae consonum dant litterae contrapunctum intensum atque remissum, omne quod fieri potest super et sub unisono.

~~D~~ ~~Sol~~ ~~♯~~ Tonus cum diapason diapente super unisono

~~D~~ ~~Sol~~ ~~♯~~

C Fa ♯ Diapason diapente super unisono

C Fa ♯

A Re ♯ Ditonus cum diapason super unisono

A Re ♯

F Fa ♯ Diapason super unisono

F Fa ♯

D Sol ♯ Tonus cum diapente super unisono

D Sol ♯

~~C~~ ~~Fa~~ ~~♯~~ Diapente super unisono

~~C~~ ~~Fa~~ ~~♯~~

~~A~~ ~~Re~~ ~~♯~~ Ditonus super unisono

~~A~~ ~~Re~~ ~~♯~~

~~F~~ ~~Fa~~ ~~♯~~ UNISONUS

~~F~~ ~~Fa~~ ~~♯~~

~~D~~ ~~Re~~ ~~♯~~ Semiditonus sub unisono

~~D~~ ~~Re~~ ~~♯~~




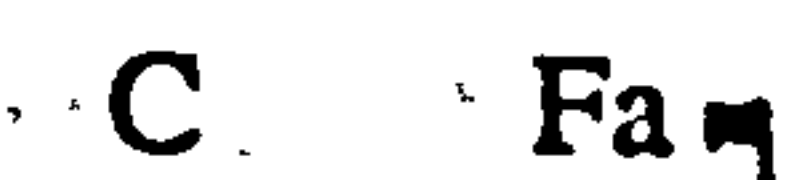





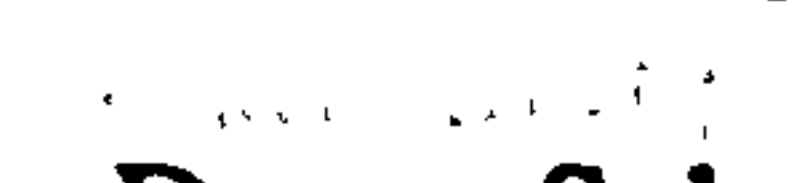



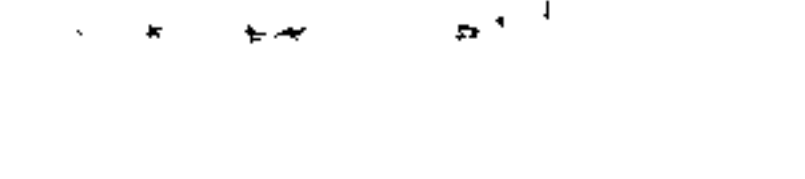






A Re ♯ Semitonium cum diapente sub unisono

A Re ♯

Intensae
voces

Remissae
voces

⁶Here also is the sixth species of diapason, which forms a consonance between low and high F. Within this, the red letters show every consonant counterpoint, both in ascent and descent, which can take place above and below the unison.

	The diapason diapente plus tone above the unison	
	The diapason diapente above the unison	
	The diapason plus ditone above the unison	
	The diapason above the unison	
	The diapente plus tone above the unison	
	The diapente above the unison	
	The ditone above the unison	
	THE UNISON	
	The semiditone below the unison	
	The diapente plus semitone below the unison	
Ascending pitches		Descending pitches

[IX]

¹De G gravi:

G grave cum G gravi quamquam sit unisonus, ad Γ gamma tamen Graecum quod est ante nostrum A grave respondet in diapason, cuius haec est septima species.

²Notet ergo diligenter quisquis has cupit pulchrer commiscere voces, quoniam etsi Γ gamma Graeca littera sit in manu Guidonis ordine prima, vi nihilominus ac potestate G gravi similis est, et in septima diapason specie constituta. ³Propter quod, totum quod est de G gravi seu acuto tractandum erit et de Γ gamma Graeco quidem intellegendum.

⁴Igitur sicut ♭ vel *mi* per acutas est ad G grave ditonus, *d* diapente, *e* tonus cum diapente, *g* diapason, sic et ♭ grave DEG sunt ad Γ gamma Graecum. ⁵Quod procul dubio nunquam evenisset, nisi cum G gravi et acuto in eadem specie diapason fuisset. ⁶Nunc ergo quod ♭ acutum sit ad Γ gamma ditonus cum diapason, D diapason diapente, E tonus cum diapason diapente, et *g* acutum bisdiapason, id est quam facile viris sensatis ad investigandum.

⁷In superacutis autem ♭ quadrum, quod est ad G grave ditonus cum diapason, erit ad Γ gamma quoque ditonus cum bisdiapason. ⁸D vero, quod est ad istud diapason diapente, ad illud erit bisdiapason diapente, sed et E cum ad G grave tonus sit cum diapason diapente, tonus aequae necesse est sit in Γ gamma, sed cum bisdiapason diapente.

6. ad gamma Γ A
7. (ditonus) sed (cum) H
bis(diapason) *supra lin* H

[1X]

¹Concerning low G:

Although low G sounding together with low G forms a unison, yet in relation to the Greek letter gamma-Γ—which precedes the Latin letter A, it answers in a diapason, of which this is the seventh species. ²Let anyone then who wishes to blend these pitches in a beautiful way, carefully take note that even though the Greek letter Γ is the first in the order on the Guidonian Hand, nevertheless in force and effect it is akin to the low G and established within the seventh species of diapason. ³For this reason, whatever is said when discussing either low or high G must also be realized as being the case for the Greek letter Γ also.

⁴And so, just as in the high register ♮ or *mi* forms a ditone in relation to low G, and D forms a diapente, E a tone plus diapente, and G a diapason, in the same way the pitches low ♮ D E and G form the same intervals in relation to Γ, the Greek letter gamma. ⁵This clearly would never have come into being had it not occurred in the same species of diapason as low and high G. ⁶Now therefore the fact that high ♮ forms a ditone plus diapason in relation to Γ (gamma), that high D forms a diapason diapente, that E forms a tone plus diapason diapente, and the pitch high G a bisdiapason, this is very easy for men of any ability to investigate.

⁷In the highest register, because the square ♮ forms a ditone plus diapason with low G, then it will form a ditone plus bisdiapason with the letter Γ—gamma. ⁸The pitch D in this register, because it formed the interval of a diapason diapente with the former, will form a bisdiapason diapente with the latter. However, since in relation to low G, the pitch E forms the interval of a tone plus diapason diapente, it must equally form a tone in relation to Γ, the letter gamma, but combined with the interval of the bisdiapason diapente.

⁹Regula generalis:

Ubicumque G vel Γ gamma fuerit quod est unum si dixerimus *h* vel *mi*, D vel *sol* vel *re*, E vel *mi* vel *la*, G vel *sol* vel *ut*, errare non possumus.

¹⁰Exceptio:

Excepto D quod semper ad G reddit diapente desuper, sub quo tamen diatessaron habet in hoc, ut satis dictum est, modulandi ritu sepositam atque reprobata.

(Figura in pagina 622)

⁹The general rule:

























Whenever the letter G or Γ (gamma) occurs, which is one letter, then if we sing **h** or *mi*, D or *sol* or *re*, E or *mi* or *la*, G or *sol* or *ut*, we cannot make any mistake.

¹⁰The exception:

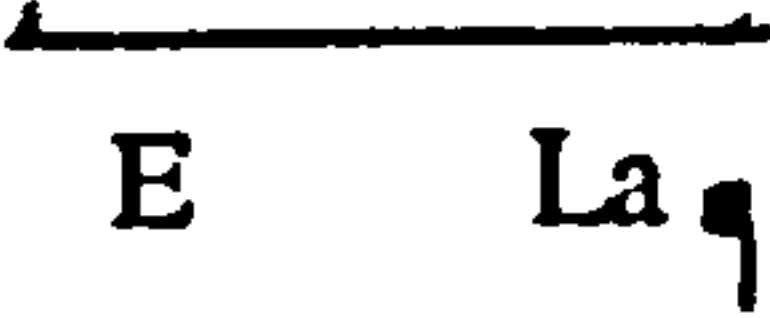















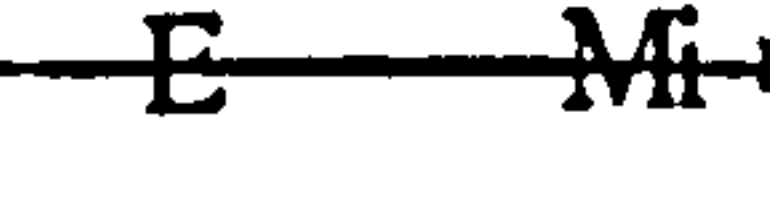
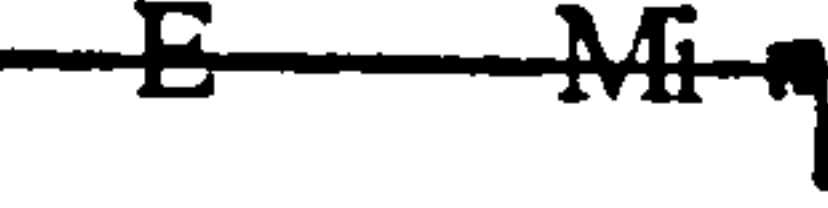
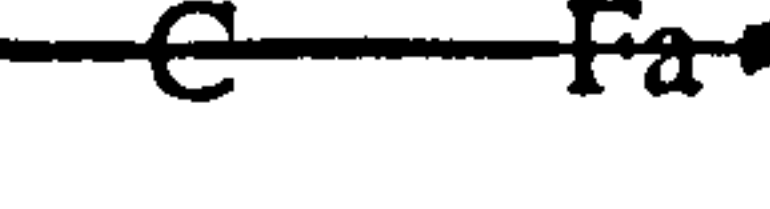

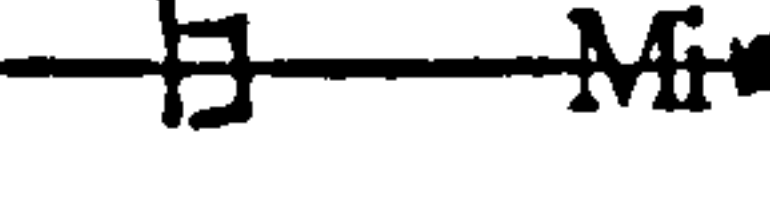


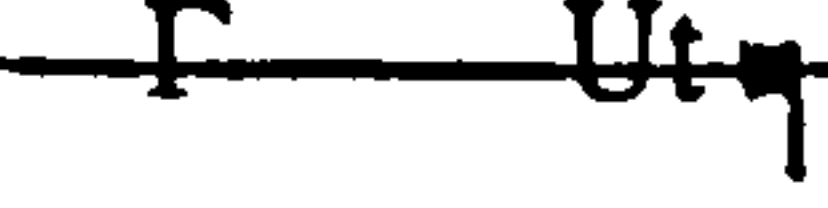
The exception to the rule is the note D, which always produces a diapente above G, but beneath it forms the interval of a diatessaron which, as I have pointed out often enough, is excluded and forbidden in this style of singing.

(Diagram on page 623)

¹¹Haec est septima species diapason quae consonat a G gravi in acutum, in qua
rubeae consonum dant litterae contrapunctum, intensum atque remissum, omne
quod fieri potest super et sub unisono.

	Tonus cum diapason diapente super unisono	
	Diapason diapente super unisono	
	Ditonus cum diapason super unisono	
	Diapason super unisono	
	Tonus cum diapente super unisono	
	Diapente super unisono	
	Ditonus super unisono	
	UNISONUS	
	Semiditonus sub unisono	
	Diapente sub unisono	
	Semitonium cum diapente sub unisono	
	Diapason sub unisono	
Intensae voces		Remissae voces

¹¹Here is the seventh species of diapason, which forms a consonance between low and high E. Within this, the red leters show every consonant counterpoint, both in ascent and descent, which can take place above and below the unison.

	The diapason diapente plus tone above the unison	
	The diapason diapente above the unison	
	The diapason plus tone above the unison	
	The diapason above the unison	
	The diapente plus tone above the unison	
	The diapente above the unison	
	The ditone above the unison	
	THE UNISON	
	The semiditone below the unison	
	The diapente below the unison	
	The diapente plus semitone below the unison	
	The diapason below the unison	
Ascending pitches		Descending pitches

[X]

¹Quid sit de primis commiscendo voces observandum.

²His ita gestis, et omnibus quae fieri queunt in singulis diapason speciebus per has septem figuras ut potui diligenter expositis, ad exempla quae magis prodesse solent quam verba prorsus est festinandum. ³Equidem cantum illum per litteras syllabas et notas quadras notatum, ac sine mutationibus cantari posse monstratum, me triplici contrapuncto gravi scilicet acuto et superacuto descripturum promisisse recordor, quod hic adimplere dispono paucis prius, quae sic modulanti necessaria sunt, annotatis per modum dialogi praeceptis.

⁴*Magister:* Non sunt docti quidem sed insensati qui putant unam esse Gallorum musicam, et unam Anglorum vel Teutonicorum, unamve Graecorum ac Italarum seu quarumvis aliarum nationum, quique scriptis iactitant aut dictis hanc tantam scientiam sub petris et in cavernis vel in aquarum quondam guttis inventam.

⁵*Discipulus:* Vere magister aut indoctissimi aut infideles; legunt etenim Jubal primo cecinisse neque credunt, aut si credunt, qualiter tamen a natura canere valuerit, aut quid proferre discedens ab unisono potuerit non sapiunt. ⁶Scirent certe si saperent neminem posse nec unquam potuisse, cum discesserit ab unisono, proferre nisi tonum aut semitonium, ditonum aut semiditonum, tritonum aut diatessaron, diapente verum aut non verum, tonum cum

1. A 57v H 73v
Quid sit..... observandum *om* A

6. sapienter *pro* saperent A
(semitonium) ditonus aut semiditonus..... vel semitonium
(ditonus) *om* A

[X]

¹What must be observed at the outset when blending parts together.

²I have now dealt with these matters, and set out carefully, as best I can, all that can occur in the separate species of diapason in these seven diagrams. Now I must hurry on to deal directly with the examples, which usually are more helpful than words. ³Now I remember that I promised to describe in triple counterpoint, in the low, high and highest registers, that melody which was notated in letters, syllables and square notation, and shown capable of being sung without mutations.⁸ This promise I am here disposed to fulfil, first setting out a few rules in the form of a dialogue—rules which are necessary for singing in this style.

⁴*The teacher:* Those who think that the French have one kind of music, the English and the Germans another, and the Greeks and the Italians, or for that matter any other nation yet another music, these men are not learned men, but fools.⁹ In either their written or their spoken words, they make the claim that this most wonderful branch of knowledge was once upon a time discovered beneath the stones, in caves, or in drops of water.¹⁰

⁵*The pupil:* Truly, sir, these men are wholly ignorant and unbelievers, for they read that Jubal was the first to sing¹¹ and do not believe it, or if they do believe it, they do not understand how he was able to sing naturally, and what he was able to produce in his departure from the unison. ⁶If they had any sense, they would certainly realize that no-one, when departing from the unison, can or ever could produce anything but the following: a tone, a semitone, a ditone or a semiditone, a tritone or a diatessaron, a true or a false diapente, a tone or a

⁸And see above *Pars secunda* 2.4.62.

⁹Cf above *Pars prima Liber primus* Preface 15.

¹⁰Cf above *Ibid* Preface 17.

¹¹Cf above *Pars prima* 1.1.6.

diapente vel semitonium, ditonum cum diapente vel semiditonum, diapason verum aut non verum cum suis compositis usque videlicet in infinitum.

⁷*Magister*: Quot sunt ex his ergo naturales ad commiscendum?

⁸*Discipulus*: Duae quidem simplices ac perfectae consonantiae, quae sunt diapente et diapason et infinitae compositae, quamquam hae tres nobis sufficiant—diapason diapente, bisdiapason, et bisdiapason diapente, sicut praedictae mihi declararunt figurae.

⁹*Magister*: Quot sunt dissonantiae compassibiles?

¹⁰*Discipulus*: Duae pro qualibet perfecta consonantia, quarum una quidem integra semper est, ut in diapente ditonus quae diesi non indiget, ac una non integra, sicut est semiditonus, quae cum diesi ditonus efficitur. ¹¹Hae duae proculdubio, tamquam puer in utero matris, intra diapente gignuntur, et ad eam reverti contendunt continuo, sicut et tonus cum diapente vel semitonium ad diapason, et ditonus cum diapason vel semiditonus ad diapason diapente, vel tonus cum diapason diapente et semitonium, ad bisdiapason, sicque de reliquis velut ad propriam matrem.

¹²*Magister*: Et quid est diesis?

¹³*Discipulus*: A te quidem didici quod sit tale signum # quo, viso vel non viso, mox tonum in duas partes sursum aut deorsum scindimus, acceptoque minori semitonio, maius non integris illis dissonantiis ut integrae fiant, ac per tonum et semitonium ad suas perfectas etiam ipsae properent adiungimus.

-
- 6. non verum *om* A
(videlicet) usque (in infinitum) *add* A
 - 8. (Diapason) diapente (et) *dele* A
bisdiapason et bisdiapason diapente *om* A
praedictae *om* A
declaruit A
 - 10. perfecta *in marg* H
integra *om* A
 - 11. ditonus *pro* tonus A
 - 12. Cantor *pro* Magister A

semitone plus diapente, a ditone or a semiditone plus diapente, a true or a false diapason, together with their compounds, and so on to infinity.

⁷*The teacher:* How many of these then possess natural qualities for counterpoint?

⁸*The pupil:* There are two simple, perfect consonances—the diapente and the diapason, and their endless compounds, although for our purposes three should suffice—the diapason diapente, the bisdiapason and the bisdiapason diapente, just as the previous diagrams have made clear for me.

⁹*The teacher:* How many compatible dissonances are there?

¹⁰*The pupil:* For any perfect consonance there are two: of these one is always complete, like the ditone within the diapente, which needs no diesis; the other is incomplete, like the semiditone, which through diesis becomes a ditone.

¹¹Without any doubt, these two dissonances are born within the diapente as a boy within his mother's womb: they always strive to return to it, for example, like the diapente plus tone or semitone to the diapason, the diapason plus ditone or semiditone to the diapason diapente, or the diapason diapente plus tone or semitone to the bisdiapason, and so on, as if to their own rightful mother.

¹²*The teacher:* And what is 'diesis'?

¹³*The pupil:* I have learnt from you the meaning of a sign like this, #, by means of which, whether it is written in or not,¹² we quickly divide the tone into two parts above or below; having already involved the minor semitone, we add the major semitone to the incomplete dissonances so that they become complete, and hasten on, of their own accord, through the tone and the semitone to their own perfect consonances.

¹²Cf Johannes' comments above at *Pars secunda* 1.9.20: Sint ergo b mollos et ♯ quadri pro pueris, et qui non intelligunt.....

¹⁴*Magister*: Instrumenta possides: labora si scis et potes.

¹⁵*Discipulus*: Laborare nequeo, quoniam quid in primis observare debeam ignoro.

¹⁶*Magister*: Fixum in primis habe frater, et id observa firmiter quod triplex, ut dixi, sit contrapunctum, grave dumtaxat acutum et superacutum.

¹⁷Triplex contrapunctum:

Grave: cum ubicumque planus cantus fuerit tu semper aut in Γ gamma Graeco, vel in A, vel in B, vel in C, vel in D, vel in E, vel in F, vel in G gravibus laboras.

¹⁸Acutum: quando sit cantus planus ubi voluerit, tu frequenter in A, vel in B, vel in C, vel in D, vel in E, vel in F, vel in G permanes acutis.

¹⁹Superacutum: si plano cantui vel A vel *re*, vel B vel *mi*, vel C vel *fa*, vel D vel *sol*, vel E, vel *la* superacutas opposueris.

16. Cantor *pro* Magister A

17. Triplex contrapunctum *in marg* H *om* A
ubique *pro* ubicumque A
super *pro* semper A

18. permanens *pro* permanes A

¹⁴*The teacher:* You have the means at your disposal: go to work, if you have the knowledge and the ability.

¹⁵*The pupil:* I cannot go to my task, for I do not know what I should observe at the outset.

¹⁶*The teacher:* At the outset, dear brother, have this established, and observe it with resolution—that, as I have said, counterpoint is triple, or threefold, that is, low, high and very high.

¹⁷Triple counterpoint:

The low register: at whatever point the plainsong melody will happen to be, you always work with the following pitches: the Greek Γ (gamma), or A, or B, or C, or D, or E, or F or G, all of which are in the low register.

¹⁸The high register: at whatever stage the plainsong melody wishes to be, you remain constantly with the following pitches: A, or B, or C, or D, or E, or F, or G, all of which are in the high register.

¹⁹The highest register: In this case, you will set the following pitches against the plainsong melody: A or *re*, B or *mi*, C or *fa*, D or *sol*, E or *la* as pitches in the highest register.

²⁰*Discipulus*: Scio quod ita sit, verum quale prius discere debeam de tribus ignoro.

²¹*Magister*: Disce primo superacutum, ac in bonam illud redige practicam eo quod qui maius habet consequens est ut et cito minus habeat. ²²Habes etenim ibi maiores consonantias, earumque dissonantias quae sunt bisdiapason, ditonus cum bisdiapason, et illis similes, quas cum discernere potueris, repente minores, quae sunt diapente ditonus ac huiusmodi quovis in loco noscere vales.

²³*Discipulus*: Hanc oro mihi praebe modum captandi practicam.

²⁴*Magister*: Nunquam ab illis quinque superacutis vocibus discedere debes, donec quicquid opponi possit consonum singulis aliis vocibus in promptum habeas, sicut est in illis septem figuris ostensum. ²⁵Ubi vero diligenter instructus illic fueris, identidem erudiri te primum oportet in acutis et gravibus, ac postea mixtim ex hoc in illud voces vocibus tam pulchrer quam et concorditer opponere, prout in hoc cantu patebit, quem hic ex industria volo clarum omnibus exemplum rei praebere.

²⁶*Discipulus*: Exemplum quidem tuum aequo praestolor animo, sed si quid aliud observare tenear adhuc scire desidero.

²⁷*Magister*: Nunquam a dissonantiis quamquam compassibilibus inchoare, nunquam in illis finire debes. ²⁸Suspensam etenim quandam habent hae dissonantiae concordiam, in qua licet utcunque delectetur sensus, nunquam tamen ibi teste natura perfecte quiescit animus.

24. (sicut) et (est) *add* A

25. idemptidem A
mixtum *pro* mixtim A

26. ut *pro* sed A
ad *pro* adhuc A

27. delectur *pro* delectetur A

²⁰*The pupil:* I realize that this is the case, but I do not know which of the three I should learn first.

²¹*The teacher:* Learn first the highest register, and bring it under your control so that it functions properly. I say this because he who controls the greater, as a result quickly controls the lesser. ²²For there you have the larger consonances together with their dissonances, which are the bisdiapason, the ditone plus bisdiapason and similar intervals. If you are able to distinguish these, you will soon be able to recognize the minor intervals—in any position—the diapente, the ditone, and the like.

²³*The pupil:* Show me, I beg you, the way to familiarize myself with this practice.

²⁴*The teacher:* You must never depart from the five pitches in the highest register until you have at your fingertips whatever consonant pitch can be set against all the other individual pitches, as I have demonstrated in the fore-going seven diagrams. ²⁵Now when you have been carefully briefed in this particular area, you must then repeatedly be instructed in the high and the low registers. After this, you must mix them, moving them from one register to another and set pitches against pitches in a pleasant and harmonious way, as is shown in the following chant; this is a melody which I am particularly anxious to provide for everyone as a shining example of this process.

²⁶*The pupil:* I happily await your example with a calm spirit, but I still wish to know whether I am bound to observe any other rule.

²⁷*The teacher:* You must never begin a counterpoint with dissonances, however compatible they may be; neither must you end with such as these.

²⁸For these dissonances possess a kind of unresolved harmony, in which admittedly the senses take at least some delight. But the spirit—and this is on the evidence of Nature—never achieves total satisfaction in this event.

²⁹Primum praeceptum:

Inchoare debes ergo vel a diapente vel a diapason, simplicibus ac perfectis consonantiis, aut etiam ab huiuscemodi compositis, ac in illis omnino finire.

³⁰Secundum praeceptum:

Cave tamen ne duas unquam feceris consequenter perfectas consonantias, hoc est, duas diapente, duas diapason, aut duas de caeteris compositis, quod absque dubio faciliter observas, si nunquam cum plano cantu descendas cum perfectis aut ascendas.

³¹Tertium praeceptum:

Potes autem cum plano cantu descendere per dissonantias compassibiles ad libitum aut ascendere, necnon duas tres aut plures illarum disponere successivas, ita quod post plures ditonos statim diapente fiat, post tonos cum diapente mox diapason, post ditonos cum diapason illico diapason diapente, post vero plures tonos cum diapason diapente subito bisdiapason, et post ditonos cum bisdiapason, bisdiapason cum diapente succedat.

³²Quartum praeceptum:

Cum ergo fueris in qualicumque perfecta consonantia, simplici vel composita, grandi vel parvula, noli concitus ad dissonantias te convertere, nisi possis statim illis suas perfectas subiungere, sed ascendente plano cantu cum perfectis descende, vel e contra, si descenderit planus cantus, ascende.

-
29. Primum praeceptum *in marg* HA
(aut) ac (etiam) *add* A
30. Secundum praeceptum *in marg* HA
(unquam) unquam (feceris) *dele* A
31. Tertium praeceptum *in marg* HA
32. Quartum praeceptum *in marg* HA

²⁹The first rule:

You must therefore begin with the diapente or the diapason, which are the simple and perfect consonances, also with the compounds of these. You must also always end with one of them.

³⁰The second rule:

On the other hand, make sure that you have not produced two perfect consonances in succession—that is, two diapente, two diapason, or two of the others, the compounds. There is no doubt that you readily observe this rule as long as you never rise or fall in parallel with the plainsong, using perfect consonances.

³¹The third rule:

You can rise or fall with the plainsong as you choose using the compatible dissonances; you can also set two, three, or more of these in succession, in such a way that after several ditones the diapente at once appears; after the diapente plus tones the diapason readily appears; after the diapason plus ditones, at that point comes the diapason diapente. After several tones plus diapason diapente, suddenly we have the bisdiapason, and the bisdiapason plus diapente succeeds the ditones plus bisdiapason.

³²The fourth rule:

When you are involved with any perfect consonance, simple or compound, large or small, do not be anxious to turn to dissonances unless you can immediately attach them to their own perfect consonances. If a plainsong melody ascends, descend with perfect intervals; if, on the other hand, the melody descends, ascend in the same way.

- 33*Discipulus:* Ergo nunquam debeo facere dissonantias nisi possint habere suas illico perfectas?
- 34*Magister:* Impossibile quidem est quod non fiant sine suis perfectis, sed hoc raro fieri debet, sicut in hoc exemplo quod sequitur feci.
- 35Resolvi solent dissonantiae compassibiles, quamquam et hae compassibiles dissonantiae resolvi soleant in non suis perfectis, ut ditonus ac semiditonus in unisonum, et tonus cum diapente vel semitonium in ipsa diapente, ditonus etiam aut semiditonus cum diapason in ipsa diapason, et sic de similibus, quod totum erit in hoc cantu manifestum.
- 36Iste planus cantus a prima littera rubea usque ad secundam habet contrapunctum per solas superacutas, a secunda littera rubea usque ad tertiam per solas acutas, a tertia usque ad quartam per solas graves, a quarta vero usque in finem omnia simul.

(Exemplum in pagina 636)

33. nisi illico possint suas habere perfectas A
35. Resolvi.....compassibiles *in marg* H *om* A
de *om* A
erit *supra lin* H

³³*The pupil*: Should I then never create dissonances unless they can straightway be followed by their perfect consonances?

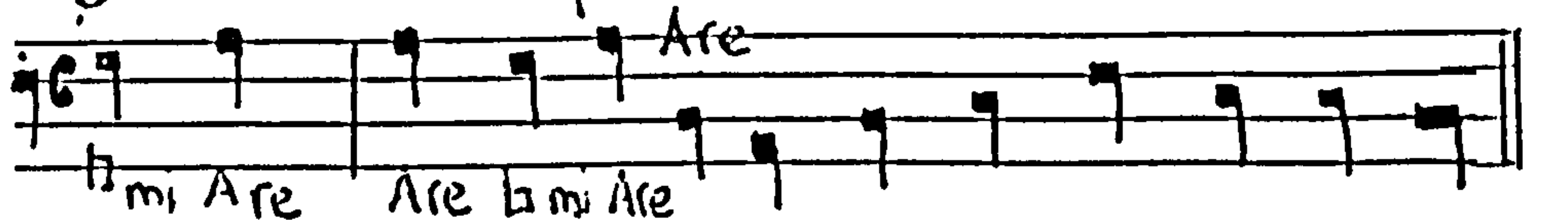
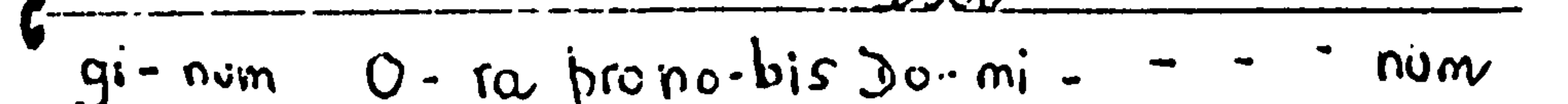
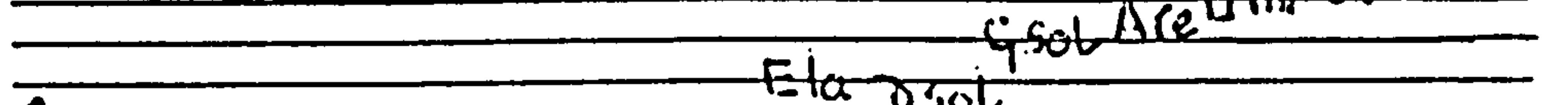
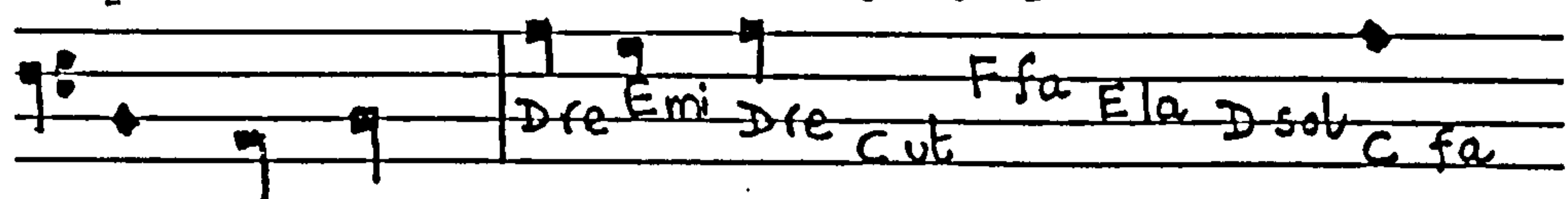
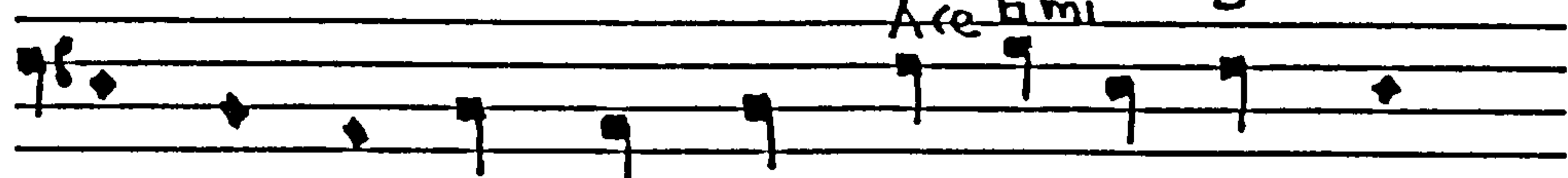
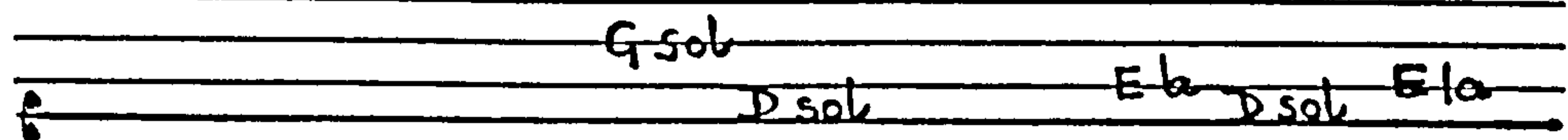
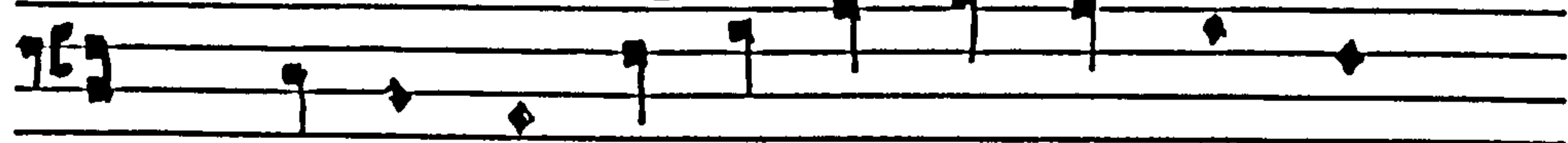
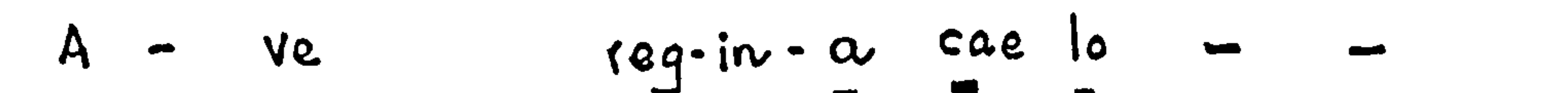
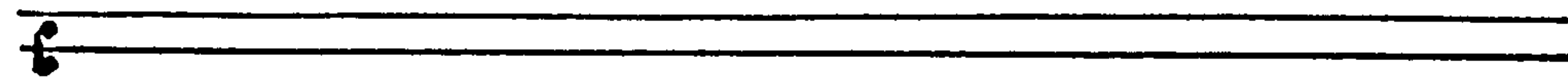
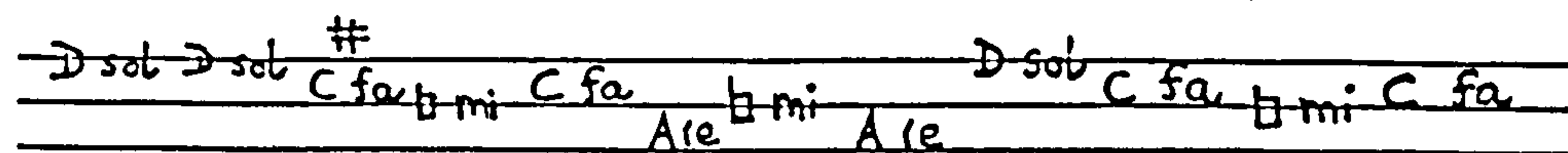
³⁴*The teacher*: It is impossible for them not to occur without their perfections, but this should happen rarely, as I have done in this example which follows.

³⁵Compatible dissonances are usually resolved, although even these compatible dissonances are often resolved onto perfections not their own, as the ditone and the semiditone onto the unison, the diapente plus tone or semitone onto the diapente itself, the diapason plus ditone or semiditone onto the diapason itself, likewise in similar cases. All of this is made clear in the following melody.

³⁶This plainsong melody, from the first red letter to the second, has counterpoint only in the very high register; from the second red letter to the third, only in the high register, and from the third to the fourth, only in the low register. From the fourth red letter to the end, all three function at the same time.¹³

(Example on page 637)

¹³Johannes has previously made use of this melody, and see above *Pars secunda* 2.4.62.



Handwritten musical score for the first system. The treble staff contains the melody with lyrics: sol - fa mi fa re mi re sol fa mi fa. The bass staff contains the lyrics: A - ve - - reg in a cael o - - . Both staves have a bracket on the left with the number 8.

Handwritten musical score for the second system. The treble staff contains the melody with lyrics: fa sol la sol sol re mi lah sol la. The bass staff contains the lyrics: - - - rum Ma ter re gis an gel - . Both staves have a bracket on the left with the number 8.

Handwritten musical score for the third system. The treble staff contains the melody with lyrics: fa mi re re mi re ut fa la sol fa mi re. The bass staff contains the lyrics: o - cum O Ma ri a flos vi - - gin um. Both staves have a bracket on the left with the number 8.

Handwritten musical score for the fourth system. The treble staff contains the melody with lyrics: re mi re re la sol sol re mi fa sol. The bass staff contains the lyrics: Or a pro no bis Do mi - - - num. Both staves have a bracket on the left with the number 8.

³⁷*Discipulus*: Expone nobis obsecro breviter huius triplicis contrapuncti magis necessaria ad intellegendum.

³⁸*Magister*: Videsne quaeso rubeas illas litteras ex opposito nigrarum ubique dispositas? ³⁹Nam et ob hoc genus istud modulandi contrapunctum a pungendo vocitatur, eo quod extremae tantummodo voces oppositae procul omni discordia sese pungant, nulla quippe de medio voce prolata, quamquam dimensis per tonos ac semitonia seu dinumeratis omnibus. ⁴⁰Verbi gratia: scis primam huius plani cantus in D gravi notam, ac primam in *d* superacuto de rubeis illis esse litteram vel syllabam, et quis nesciat has duas voces extremas distare per bisdiapason consonantiam? ⁴¹Ego enim a perfectissima bisdiapason inchoare malui quam ab alia, quae posset in eodem loco fieri, diapason diapente consonantia. ⁴²Quae cum voces quindecim habeat, ac decem tonos cum quatuor semitoniis minoribus, siquidem duas solummodo voces extremas tangentes, de tresdecim quae de medio sunt, nisi forte numerando seu per suos tonos et semitonia metiendo, nil curamus. ⁴³Quod quippe non solum de his, sed et de caeteris omnibus quaecunque fiunt aut fieri possunt tam consonantiis quam dissonantiis sapere debes. ⁴⁴Sed ad nostrum quaeso propositum redeamus. ⁴⁵Post bisdiapason ut vides per tres continuas procedo dissonantias compassibiles, quibus in C gravi suam per bisdiapason trado perfectionem, ascendendo videlicet uno in superacutis minori semitonio, et in gravibus per tonum integrum descendendo, necnon unam de tribus illis dissonantiis non integram per diesin, quam ibi signavimus integrando.

³⁷*The pupil*: Explain briefly for us now, I beg you, the things which are essential for the understanding of this triple counterpoint.

³⁸*The teacher*: Do you, I ask you, do you see those red letters arranged in every case opposite the black? ³⁹It is because of this that this style of singing is called *counterpoint*, from the Latin verb *pungo* which means 'to prick' or 'to point'. This is because only the outer voices are set against each other, and strike an effect which is far removed from all discord, while no voice is produced in between, even though all the pitches are measured or reckoned in tones and semitones. ⁴⁰For example: you know that the first note of this plainsong melody is on low D, and that the first letter or syllable occurring on the very high *a* is of the red variety. Who could fail to know that these two extreme pitches are removed from each other by the consonant interval of a bisdiapason? ⁴¹For I preferred to begin with the most perfect bisdiapason than with the other consonance, the diapason diapente, which could happen in the same position. ⁴²Now although this consonance contains fifteen pitches, ten whole tones with four minor semitones, touching only the two extreme pitches, I disregard the thirteen pitches which come between unless perhaps I wish to count and measure it through its tones and semitones. ⁴³You should know this, not only in connection with these, but also with all the rest of the consonances and dissonances which are created, or could be created. ⁴⁴ But let us, I beg you, return to the subject. ⁴⁵As you see, after the bisdiapason, I progress through three compatible dissonances in succession, and by means of the bisdiapason on low C, I grant them their perfection, first by ascending by a minor semitone in the highest register, and descending in the low register by the distance of a whole tone, and secondly by making complete the one incomplete dissonance of the three through the use of the diesis, the sign for which I have placed at that point.

⁴⁶Deinde duas iterum facio dissonantias integras, quibus dare suam perfectam diapason diapente non valui, sed in eam a qua compositae sunt diapason perfectissimam resolvi.

⁴⁷Quo prolato diapason in *a* videlicet acuto, mox tribus cum plano cantu dissonantiis descendentibus, quarum una per diesin sit integra, suam perfectionem in F gravi per diapason diapente tribuo. ⁴⁸Dein aliam statim in E gravi creans non integram, nisi per diesin integretur, dissonantiam, ei bisdiapason in D gravi subiungo, post quam et alia quidem in C gravi dissonantia sequitur integra, quam in ea cum qua componitur bisdiapason resolvo.

⁴⁹Quid ultra quaeris o frater? ⁵⁰Si discere cupis, fac ubique similiter.

⁵¹EXPLICIT.

46. iterum *om* A
qua *supra lin* H
48. et *pro* ei A
49. o *om* A
51. (EXPLICIT) FINIS *add* A

⁴⁶Next, I again create two complete dissonances to which I could not grant their perfect consonance, that is, the diapason diapente; what I have done is to resolve them onto the most perfect consonance, the diapason, from which they are made up.

⁴⁷Having produced this diapason on high a , I quickly grant perfection to the three dissonances descending with the plainsong, of which one is made complete through diesis on low F by means of the diapason diapente.

⁴⁸Then, straightway, producing another incomplete dissonance on low E—which remains incomplete unless we use the diesis—I join to it a bisdiapason on low D, after which comes the other complete dissonance on low C, which I resolve onto that interval of a bisdiapason from which it is made.

⁴⁹What more do you want, my dear brother? ⁵⁰If you are anxious to learn, then go and do likewise on all occasions.¹⁴

⁵¹THE END OF THE TREATISE.

¹⁴Cf *Sec. Lucam* 10,37: Vade, et tu fac similiter.